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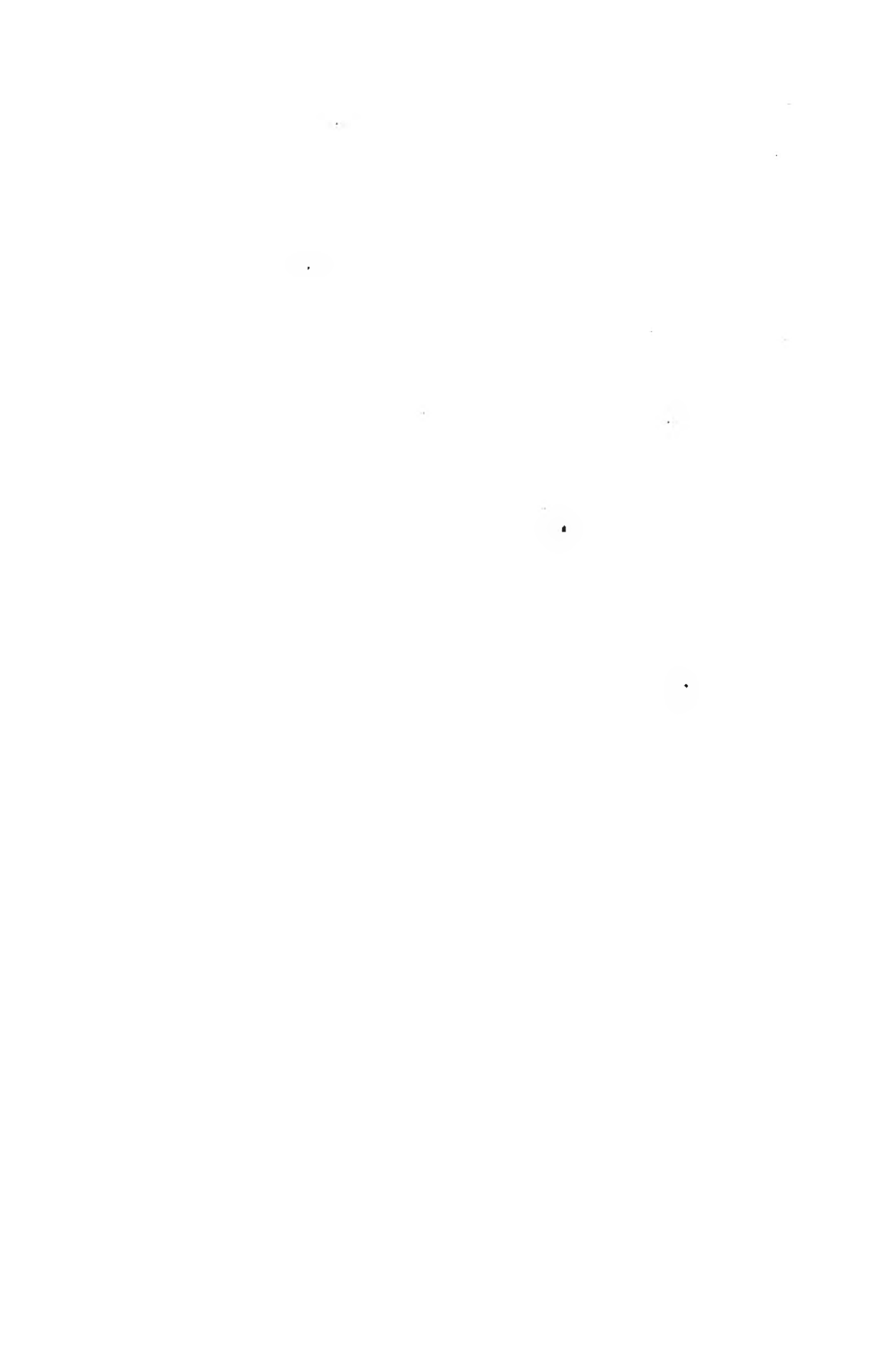


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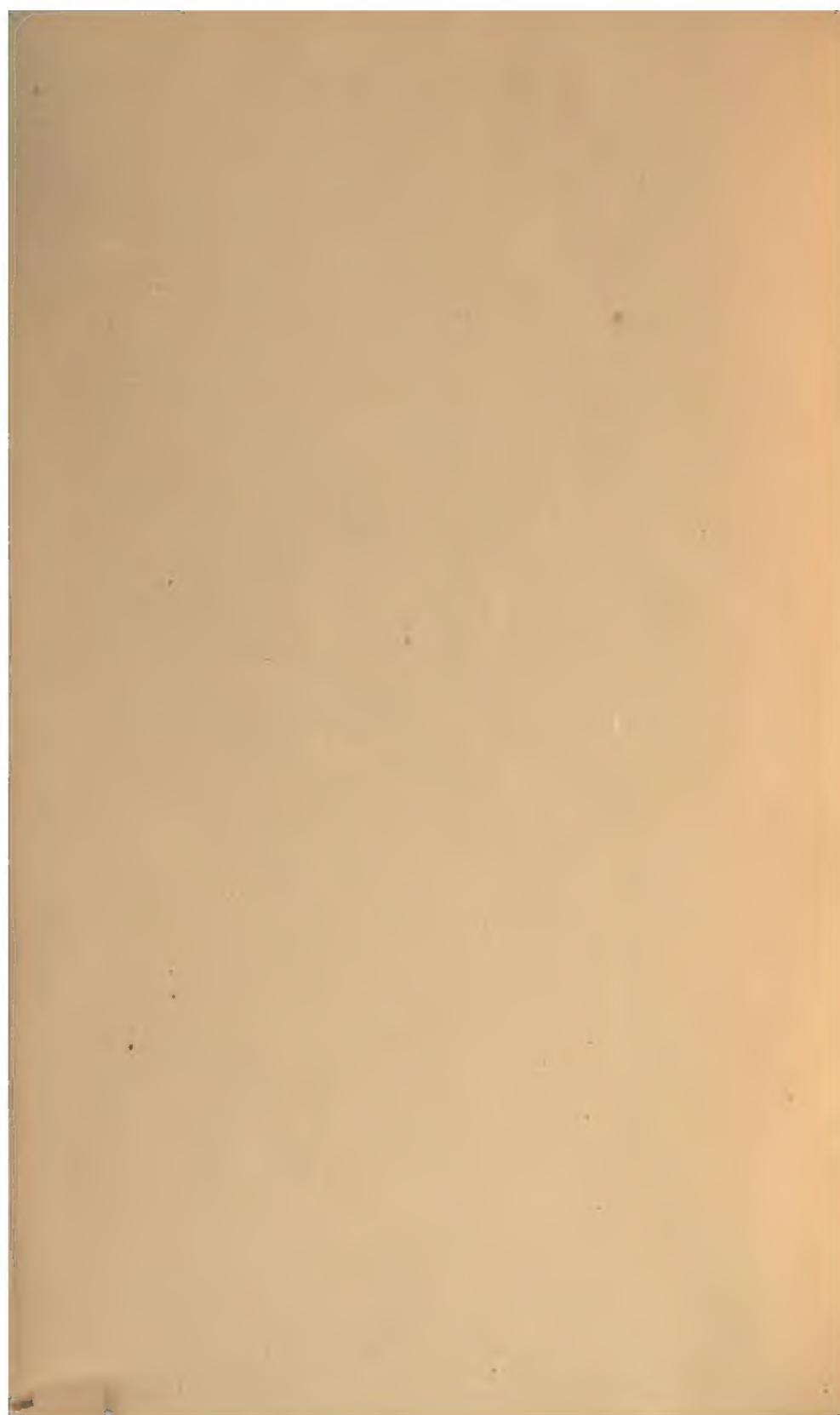




















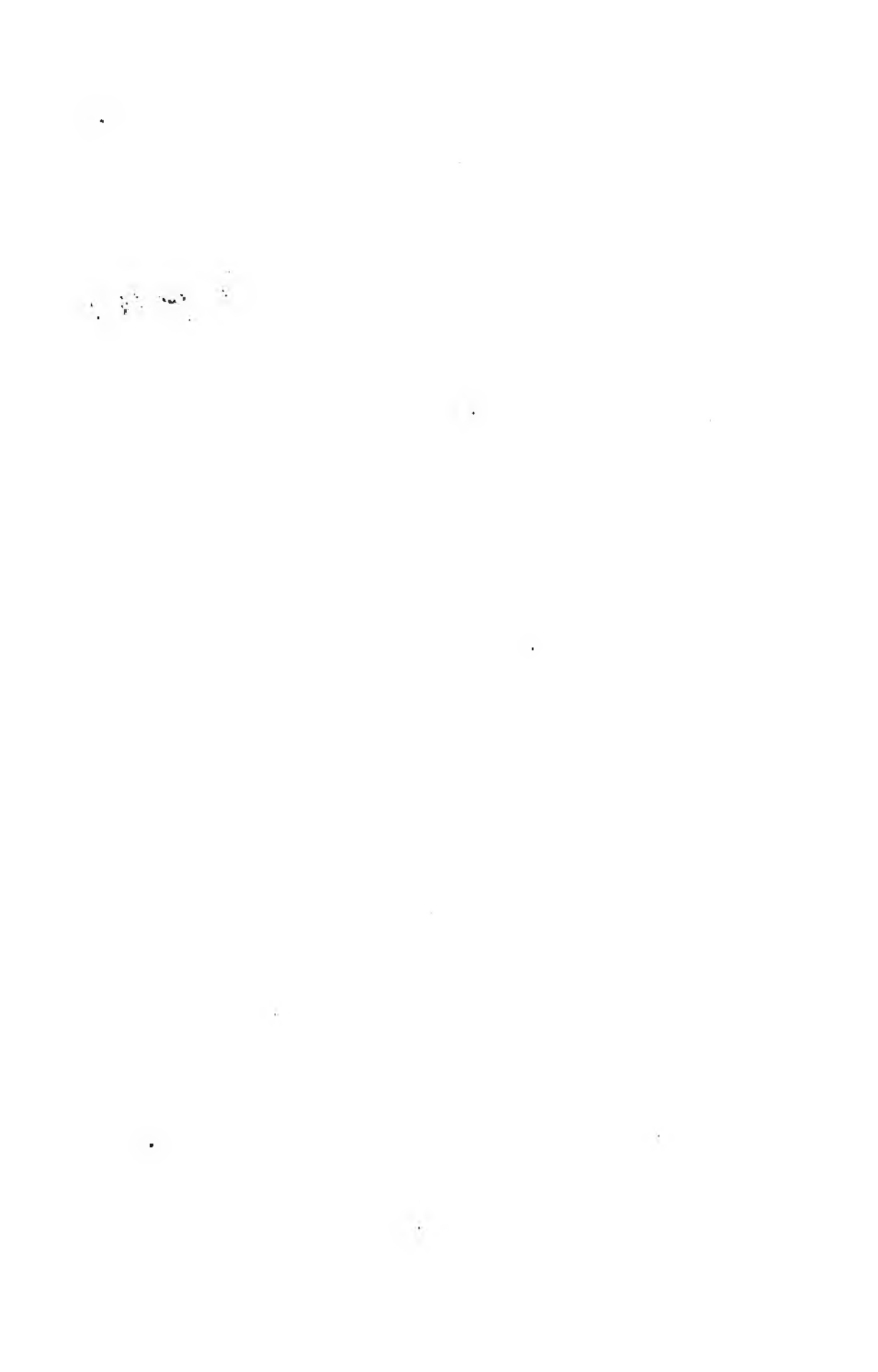


CATARRHAL DISEASES

OF THE

NOSE, THROAT, AND EARS.







To Prof. L. H. Lane  
with the compliments of the  
A Author.

PRACTICAL TREATISE  
ON THE *Aug. 26. 18.*  
MEDICAL, SURGICAL AND HYGIENIC  
TREATMENT  
OF  
CATARRHAL DISEASES  
OF THE  
NOSE, THROAT, AND EARS;

INCLUDING

Anatomy, Physiology, Pathology, Etiology, and Symptom-  
atology Connected therewith;

WITH

ONE HUNDRED AND FORTY-EIGHT ILLUSTRATIONS;

AND

Thirty-two Lithographic Plates, Showing Anatomical Sections of  
the Nasal and Pharyngo-nasal Cavities, and the  
Cells and Sinuses Connected with them.

BY

THOS. F. RUMBOLD, M. D.

Fellow of the American Rhinological Association, Member of the St. Louis Medical Society; Permanent Member  
of the American Medical Association, and of the Medical Association of the State of Missouri, etc.

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SECOND EDITION,  
REWRITTEN AND ENLARGED.

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ST. LOUIS:  
MEDICAL JOURNAL PUBLISHING COMPANY.  
1888.

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# PREFACE TO THE SECOND EDITION.

NON-IRRITATIVE APPLICATIONS AND HYGIENIC MEASURES.

The theory and practice advocated in this work, are the products of arduous labor, constant study, and daily observations, that commenced in 1855. The practice is strictly in accordance with the theory, the latter being an outgrowth of the former.

My attempt has been to discuss catarrhal disease of the Nose, Throat and Ears as a unit. I contend that throat complaints can be more successfully treated in connection with the pharyngo-nasal and nasal inflammation, which always exists, than when treated alone; because the disease of the throat is a disease of the nasal passages extended to the throat; and that diseased ears can be more successfully treated by treating the rhinal inflammation which always exists, since the ear disease is a rhinal inflammation extended to these organs.

The thought that runs through all I say (in PART I) concerning the Anatomy and Physiology of the Nose, Throat and Ears, as well as all I say concerning the Pathology, Etiology and Symptomatology of the diseases that affect them, is (*a*) that the nose is the organ first and generally chiefly affected; and (*b*) that throat and ear diseases are always secondary to nasal inflammation.

In the Anatomy of these parts, I have taken special pains to show the numerous nervous and vascular connections between the nasal passages and the adjacent organs, and especially those of the brain, and also to show that very many nervous diseases may be traced to rhinal inflammation. I have also given a chapter on the sym-



pathetic nervous connections between the nasal passages and the throat, ears, brain, heart and lungs. In my opinion this system of nerves proves the unity of catarrhal disease in the Nose, Throat, and Ears.

In the Physiology of these parts, I have taken special pains to show that the mucous membrane of the regions under consideration is a very important organ, one that loses its function on the supervention of inflammation. I have embraced every opportunity to show the inconsistency of making irritating applications to the diseased mucous membrane, whose condition is the result of irritation that originated in the integumentary, and mucous surfaces of the body. What I have said concerning the functions of the soft palate, uvula, and the azygos prominence in the first edition of this work, is again repeated. My experience in the treatment of singers and speakers, fully sanctions these views. All that I have given concerning the functions of the Eustachian tube, middle ear, and mastoid cells in the first edition, is also repeated here, with many additional facts to prove the correctness of the views advanced.

In the Pathology, I have employed the facts given in the Anatomy and Physiology, to show how irrational it is to employ irritating applications to relieve chronic inflammation, and also to show that scar tissue cannot perform the functions of mucous membrane. I have taken special pains to give the mechanism of irritation, congestion, inflammation, proliferation, atrophy and ulceration, claiming that each follows the other, as effect follows cause.

I think that the Etiology which I have given of this disease, is exceedingly simple. As stated on page 193, my views were built, as it were, from suggestions received by the reading of different articles in medical journals and books during the last thirty five years. These views have been confirmed by my patients' VOLUNTARY EXPRESSIONS.

The first article that strongly impressed me with the



important relationship between the integumentary covering of the body and the mucous membrane of the lungs, was one published by Dr. Matthew Troy, of Whiteville, N. C., in the *American Journal of Medical Sciences*, 1852. The next paper bearing on the same subject, was from the pen of Sir Jas. Y. Simpson, of Edinburg, Scotland. The first paper was purely theoretical, the second, decidedly practical. Dr. S. applied his remedy (oil) to the surface of the body to relieve disease of the mucous membrane of the lungs. Both articles demonstrated, beyond a doubt, that there exists an intimate nervous relationship between the skin and the mucous membrane of the lungs, really proving that irritation of the skin by colds, produced irritation of the mucous membrane of the lungs, and the removal of the irritation of the skin allowed the mucous membrane, by the reparative processes of nature, to resume its normal function. The last article that influenced me in this direction, was one from Dr. T. Lauder Brunton, of London, in *Brain*, in 1878. This article enabled me to formulate the views which are here presented.

Because of the frequency of failure, in the early part of my medical career, in the treatment of nasal disease, I imperceptibly allowed my practice to be changed by my intelligent patients' VOLUNTARY STATEMENTS concerning the effects of my treatment. I now think that I was very fortunate when I fell into this most accurate way of acquiring clinical facts. In no other way could I have acquired so accurately the knowledge I was seeking. Even answers to questions, in which the greatest care was taken to exclude the information desired, from the question asked, would not have been nearly so reliable. These VOLUNTARY EXPRESSIONS ultimately led me to adopt a course of treatment directly in opposition to all medical teaching and practice. In this way I began to look ✓ upon all harsh measures as positively injurious; but my thoughts upon this subject were not permanently formulated until 1878, after reading Dr. Brunton's article above mentioned. Even at that time I was afraid to give full



expression to my views in the first edition of this work (which was then going through the press), but did give the method of my treatment—which very plainly sets forth this theory—and as completely as I have done in this edition. While doing so, I gave enough of this theory to demonstrate its consistency with my practice.

It is seen that the theory and practice are, to a considerable extent, the result of intimations or directions, as they might very properly be called, received from my intelligent patients. The facts gained from this source accord perfectly with the views held by Brown-Sequard, Branton, Landois, Stirling, and many other physiologists and pathologists, in regard to the functions of the sympathetic nerves, and the mechanism of inflammation and reparation. While I am highly pleased that the facts given by my patients accord with the above named authorities; yet I consider the information I received through these intelligent patients, in the manner described, as deserving of far greater consideration than that which could have been derived from any other source. My patients did not know any thing concerning the theories of physiology or pathology, but numbers of them, without the least assistance from me by question or intimation, agreed, as if by concert, to certain important facts, namely: the injurious nature of irritating means and methods, and the great value of the observance of the laws of health. As these facts are consistent with the physiology and pathology of the mucous membrane of the Nose, Throat and Ears, it follows that the theory founded upon them is also correct.

In the Symptomatology, I have taken special pains to show that by far the greater number of throat symptoms are directly traceable to nasal inflammation, as proved both by inspection and treatment.

The chief or leading purpose in PART II (Instrumentation), is to show how the whole of the inflamed surface of the nasal and pharyngo nasal passages and the pharynx, larynx and much of that of the ears may be reached by



instruments without causing the least irritation. I have taken much space for the condemnation of some of the means, methods and remedies now popular with the profession, that are productive of excessive irritation, and that fail to reach the surfaces most requiring treatment. Among the means and methods condemned are the brush, the sponge, the inhalation of vapors, the insufflation of powders, as well as the use of excessively irritating agents as tannin, nitrate of silver, etc. Such irritating agents produce a hurtful effect upon the sensory nerves of the mucous membrane. This effect is transmitted to the cervical sympathetic ganglia, which reflect it upon the blood-vessels of the inflamed mucous membrane. The muscles surrounding these blood-vessels, being under the control of the sympathetic nerves, become relaxed, so that the blood-vessels are enlarged, the persistence of which results in inflammation.

It is conceded by all who have had extensive experience in operative procedures requiring the use of a great variety of instruments, that it is an important means of securing success to have every thing so arranged that the operator may have the greatest facility for making examinations, applications, operations, etc. With this end in view, I have spared no pains to make the armamentarium of my office, including my operating table, as perfect and as convenient as possible. It has been my aim to simplify the method and instruments for cleansing and for making applications, but, in so doing, I have not sacrificed thoroughness for simplicity, nor have I sacrificed my views as to mildness of effect, in the use of any instrument.

The substance of what is said against the use of the Weber douche, I read before the St. Louis Medical Society in September, 1868. My Spray Producers were presented to the same Society in 1869, after an experience of three years.

The instruments illustrated in Figures 15, 27, 28, 29, 32, 41, 42, 43, 50, 54, 56, 57, 65, 67, 84, 85, 86, 88, 89, 90,



91, 92, 93, 94, 96, 97, 99, 102, 103, 112, 113, 114, 115, 117, 118, 119, 121, 125, 126, 128, 140, 144, 145, are of my own designing, although I have not thought it necessary to state, under each instrument, "The Author's," etc.

Sec. III of this Part is devoted to that important adjuvant, Electricity.

Part III is devoted to a description of the Catarrhal Diseases of the Nose, Throat and Ears. The Therapeutic and Operative measures that are required for their relief, are given in detail. It is evident to all who have made a study of nasal inflammation, that the symptoms in the infant and those in old age exhibit very different phases or grades. It follows, therefore, that the treatment must be varied with the varying grades. I have divided the disease into five grades, not that there are as many different kinds of catarrhal inflammation, but because the age of the patient has to some extent a modifying influence on the disease and requires a slight difference in the treatment. The views respecting the importance of non-irritation, expressed so frequently in the earlier portion of the work, are emphasized in this part. All remedies recommended and all means for their application, are those only of a perfectly non-irritative character, and all operative measures are those only that leave but little or no scar-tissue.

I have suggested the name PRURITIC RHINITIS for the complaint commonly called *hay-fever*. It is descriptive of its most prominent, constant, and characteristic symptoms, namely: itching and inflammation. I have described the disease as a sequence of common nasal catarrh. This I held in a paper read before the St. Louis Medical Society in May 1869. I made the same statement during a discussion on Helmholtz's method of treating hay-fever in the Illinois State Medical Society, at one of its meetings in Jacksonville, Ill., in May 1874. On page 60 of my first edition of *HYGIENIC AND SANATIVE MEASURES FOR CHRONIC NASAL CATARRH* is seen the same assertion. This book was not given in a bound form to the public until Sept. 1880; but I gave a few forms (about 166 pages), in which



this statement occurs, to quite a number of the members of the American Laryngological Association in June, 1879. If my memory serves me right, Dr. Beverly Robinson was one of the five or six members that received these forms. Besides this I sent out several hundred copies of the same pages to physicians in the West, as an advertisement of my book. The most that I have said here on Pruritic Rhinitis, is taken from the 2nd Edition of a small book I published on this subject in 1887.

A few years after I began to limit my practice to the treatment of the diseases of the Nose, Throat and Ears, I discovered that the successful management of a catarrhal condition of these organs depended largely upon my patients faithfully observing the laws of health. I soon found also that even after they had recovered as completely as it was possible for them to do, the continued observance of these laws was required to maintain their health.

For these reasons, I commenced in 1862, to give such rules to my patients as observation had taught me were useful in aiding them to take care of themselves during those seasons of the year in which they were most liable to take cold. These rules I have given in chapters, in PART IV. To these chapters I have added several others on Sanatory Measures.

I have taken great pains to repeatedly show that it is very important for the patient to discontinue those habits and customs which result in irritating the sensory nerves of his integumentary and mucous surfaces by colds, tobacco, stimulants, etc.

I do not claim that all which is written here on hygienic and sanative measures is new; but I do say that writers have not given these subjects with that adequate detail and earnestness which their importance demands.

In PART V, I have given the histories of such cases as demonstrate the importance of a careful study of rhinal diseases and their sequelæ.

The two expressions, NON-IRRITATIVE APPLICATIONS



and HYGIENIC MEASURES, indicate very accurately the kind of practice advocated in this work. Many years of experience prove that they cannot be wrong. Not only does my practice prove them successful, but it can be shown, upon theoretical grounds, that there are good *reasons* for employing this kind of applications, and advising such measures. An outline of the theory will contain some of these reasons. To enable me to give the outline, I will take a hypothetical case, a man 35 years of age, who has been addicted to the use of tobacco.

In such a case, as in all classes of patients, the catarrhal inflammation was first brought about by irritation of the integumentary and mucous surfaces, this being occasioned by innumerable colds. The colds affected the sensory nerves of both of these surfaces. These nerves transmitted the injury to the cervical sympathetic ganglia, which send nerves to the muscles surrounding the blood vessels in the mucous membrane of the Nose, Throat and Ears. Through this nervous connection, the blood vessels become dilated; and this is the result of the injury to the sensory nerves. This dilation is known as inflammation.

In the great majority of instances, the inflammation is the result, through reflex action, of irritation of the sensory nerves. Tobacco, carbolic acid—in quantities sufficient to produce anæsthesia of a more or less degree—hot steam, fumes of iodine, etc., I believe, produce paresis of the sympathetic nerves of the parts touched, by direct action as well as by reflex action. There is another agent that produces inflammation by direct as well as by reflex action, and that is the catarrhal secretion. It is seen that, in our hypothetical case, the irritating and injurious effects of tobacco, as well as the catarrhal secretion, assist, by their primary influence on the sympathetic nerves, in producing and maintaining an inflammation of the mucous membrane.

It is not denied by any one, that these two local



irritating agents should be removed from the inflamed mucous membrane. What then, can be said of the effects of the application of nitrate of silver to this membrane? The medical practitioner must see at once, that its irritating properties must aid the other irritating agents, such as colds, tobacco, and catarrhal secretion, in maintaining an inflammation in this region. The sensory nerves of the mucous membrane, will, as already stated, transmit the injury received from the nitrate of silver, as they transmitted the injury from the tobacco and catarrhal secretions, to the cervical sympathetic ganglia, which, through reflex action, will cause further dilation of the blood vessels of the already inflamed mucous membrane.

Of course, it is well known that nitrate of silver has also the effect of destroying the membrane by chemical action.

To be consistent with the theory partially given above, five things must be done in order to successfully treat catarrhal inflammation of the Nose, Throat and Ears, namely:

- A. Non-irritative agents only should be employed.
- B. The means for making these applications should not produce the least irritation.
- C. The whole of the irritating catarrhal secretion should be removed.
- D. The agent applied should have sufficient solidity to remain for several hours on the inflamed surface, to protect it, as much as possible, from the irritating influence of the air, and it should possess also, such properties as will prevent the future secretion from becoming acrid.
- E. The patient must discontinue irritating his integumentary and mucous surfaces by colds, tobacco, etc.

If all this is faithfully followed, the *vis medicatrix nature* will perform the cure.

If our hypothetical case had been under five years of age, giving advice regarding the protection of the body from the injurious effects of colds, would be all that the physician need do. In such a case, if the advice is fol-

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lowed, the reparative processes of nature would perform the cure. The parietic sympathetic nerves would soon recover their normal contracting power, which would be a restoration to healthy action. But this patient is thirty-five years old; the inflammation has produced changes that are more or less permanent; the secretion is not as fluid as in the young patient; therefore it cannot flow away, and before the *vis medicatrix nature* could remove it—one of the essentials of cure—the mucous membrane would become thickened by proliferation. Thus the secretion and the thickened membrane would interfere with respiration and other functions, as well as produce pressure upon the sensory nerves of the parts, which in turn would increase the flow of secretion and the proliferation. Thus each product of inflammation causes the formation of other products, until unassisted nature is finally overwhelmed. It is thus seen that nature must receive assistance in the case of patients whose inflammation has assumed a chronic form; but this assistance must be given in such a manner as not to produce the least irritation.

Although I have endeavored to indicate as plainly as possible, the proper management of every grade of this disease; yet those who expect that this book will enable them to successfully treat *every* case, will be disappointed. The circumstances surrounding each patient are different from those of every other patient, making it necessary that each case shall be studied by itself. *The management of this disease cannot be learned in a short time.*

Having gone entirely out of the beaten track, as respects the methods of making local applications, and the remedies employed, I may be thought too regardless of long established practices. This, however, I leave to the profession, who, after all, are the PROPER CRITICS. Their almost universal dissatisfaction with the prevailing methods will soon lead them to ascertain, for themselves, whether what I have here recommended is an improvement, or merely a change. That I have differed very



materially from many who are recognized by the profession as being well informed on this subject, I am well aware; but I have only to say that what has been given here, is the result of an honest search after facts, and that these facts are stated as I saw them, I have not hesitated to question the correctness of long acknowledged theories, my chief guide being my patients' reports. **THESE HAVE BEEN MY EDUCATORS.**

Whoever, in treating of any subject, recommends a departure from established practices, may expect to encounter opposition. This opposition does not imply that his views are right, neither does it prove them wrong; it indicates only that they are new, since but few will, at the start, admit that the methods upon which they have depended are wrong. If my views, therefore, were received with immediate, universal and unqualified approbation, this circumstance alone would afford a presumption that there was not much to be learned from them. On the other hand, the more deep-rooted, and generally prevalent any error may be, the less favorably at first, will its refutation be received.

Many may think that I have been too prolix on some points; but now that my book is in type, I fear that I have not been as full as the importance of many of the subjects demands.

I have made topics of the different subjects, and each topic is numbered with antique type of the fount in which it is printed. This will enable the reader to more readily find any topic referred to. I have also placed the leading thought of the topic in antique type, which will assist the reader to more easily catch the item he is looking for.

I wish here to acknowledge the assistance I have received in various ways, in the preparation of this work, by many whose names appear in the body of the book. I shall always remember them as friends indeed; but to Prof. Hiram Christopher, for critical suggestions in the literary execution of the work, and also to Dr. A. H.



Ohmann-Dumesnil, for assistance of a similar character, I am much indebted, and to both of these gentlemen, I desire to present my cordial acknowledgements.

The thirty-two lithographs, described and shown on pages 967 to 1029 inclusive, are taken from Dr. E. Zuckerkandl's *Anatomy of the Nasal Passages*. Even if I did not know from numerous dissections, made during the last thirty-one years (1857), that these plates are a true representation of the parts shown, the fact that they are copied from Zuckerkandl is a sufficient guarantee of their correctness. Mr. Jno. T. Armet,—of Woodward & Tiernan Printing Co.,—executed these illustrations on stone. Every anatomist will at once recognize that the artist's work is faithfully and accurately performed.

Most of the electrotypes for the illustrations of instruments, other than my own, were received from Messrs. Hernstein & Prince, of this city, and also a few from A. S. Aloe & Co., and A. M. Leslie & Co., of this city. To these gentlemen I wish to express my thanks for their kindness.

St. Louis, Mo.

2644 Washington Avenue.

June, 1888.

T. F. R.



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## INTRODUCTORY.

### Remarks of a Personal Nature.

An author is estimated by what he writes. It is evident, however, that his views and conceptions, especially if they relate to certain disputed matters in medicine, would be more likely to be received favorably, were it known that he had had an extended practical experience and ample opportunities for observation in regard to the matters in question.

As much of what I say is concerning disputed questions in medicine, I feel myself called upon to show what practical experience I have had and what opportunities I have enjoyed for observation on these subjects.

To do this, I shall relate that part of my medical history which pertains to my rhinological studies and practice. This will serve the purpose of increasing the reader's reasons for faith in what I say, and of showing that I have earned the right to freely criticise both the opinions and methods of acknowledged authorities, and to give expressions to such views and methods of my own as my experience and observations have declared to be more nearly correct, even if what I say does differ markedly from the practice and opinions that are held by men who are justly considered pre-eminent in our profession.

The following is a partial narrative of my rhinological studies and practice :



While attending a literary college, at the age of 19 years (1849), I commenced to read medicine and to make pills and powders as my limited time would permit. My preceptor, fearing my questioning propensity, informed me, as he handed me the two volumes of Pancoast's *Wister's Anatomy*, and *Carpenter's Physiology*, that I must not ask him one question until I had committed to memory all that these three books contained concerning that portion of the human body located above the shoulders, at the same time motioning, with his hand, from the lower portion of his neck upward. I devoted fully two years of my spare time to studying this, my *first lesson* in medicine. Every physician of my acquaintance at that time, gave me credit for knowing the anatomy and physiology of the head far more thoroughly than even the best informed graduates in medicine in that neighborhood. The fact that there is a sensitive and an extensive mucous membrane that lines the numerous cavities and colls connected with that portion of the air passages, and a large number of blood vessels and important nerves, was deeply impressed on my mind by this lesson. I am firmly of the opinion that this first lesson had more influence in directing my mind and inclinations to the study and treatment of nasal troubles than any other incident in my life.

Up to the time I took my first course of medical lectures—the winter of 1854-55—I had frequent opportunities, in my preceptor's office, of treating sore throats, sore ears, sore eyes, etc., as well as of learning the peculiarities of children in regard to putting beans, grains of corn, young peaches, etc., in the nose and ear. I did not at first like this kind of practice, and really looked upon it as a kind of imposition that I thought my preceptor had the right to put upon me, consequently, did not refuse to do the best I could. As I was frequently successful, I began to like it. I remember two cases in particular: a neighbor's child had put a small green peach up each nostril, and my preceptor was requested to remove them, but as he was not to be found, another physician was called. He failed to take the peaches out—using a large pair of dressing forceps—but forced them farther into the nostrils. A second call was made for my preceptor and as he was not in, I went to see what I could do. I was well acquainted with the little boy, and, on this account, he let me inspect his nostrils. The peaches were driven backward about an inch. I bent the point of a large pin—one about two inches long—so as to make it slightly hooked, and promising the little fellow not to hurt him, I pulled the peaches out at two efforts. The report of this success was spread by a large number of friends of my father's family. In about five or six weeks, this brought me another case, one in which a child had put a small white bean into its right ear. A physician had made a few



eight attempts at its removal. Of course, I tried to use my little box, this time made from a needle, whose point had been heated to draw its temper; but I pushed the bean still further into the auditory canal, and greatly increased the pain. I asked the boy's father, a watch maker, whether or not he had a fine, small pair of pinchers, and went with him into his shop to select one. While there I saw a large pin with a black head upon it, and incidentally asked what it was; and on being told that it was shellac, the thought came into my mind to attempt the removal of the bean by causing this, while it was in a soft condition after heating it, to adhere to the bean. I tried it at once but it failed. A small syringe with warm water was next tried; but this also failed. The ear was carefully dried with cotton and the wax again applied, but it would not adhere to the bean. I then tried the shellac on a similar bean in my hand, but it would not stick there either. Then the father of the boy suggested the use of a little turpentine on the bean before the shellac was applied. This was tried and success followed. These and other successes gave me confidence in my ability to remove many of the common ailments that were met in the office of a physician who had a very large family practice. In fact, the first article I wrote on medicine, was on the "Removal of Foreign Bodies from the Nose and Ear." In this article I dwelt largely on the importance of a thorough knowledge of the anatomy of the parts to enable one to successfully remove foreign substances from the organ under consideration. I sent this article to an Eastern editor in 1852, but, as I was not a medical graduate, it was not published.

Shortly after I commenced to practice medicine in 1855, I was introduced by Mrs. —, a highly educated and much esteemed lady patient of mine, that she had a niece, about 12 years of age, who was afflicted with nasal catarrh, and, as the patient was to live with her, she wished me to treat her. Mrs. — said, at the time, that she knew that nasal catarrh was difficult to cure, but as I was "young and industrious" I might succeed, and suggested that it might be well to look up my notes that I had taken while at medical college, as they would be useful. The doubt that she expressed about the success of my efforts at curing the patient and her remarks concerning the notes taken at college, I felt as a severe reflection; but I did not reply for the reason that she had been of great service to me in my obstetrical practice. On a second thought, I took her advice and read every thing I had on nasal catarrh. Dr. Horace Green's work on the throat was then just out; this I procured and read and marked the paragraphs that contained the information I thought I might need for my patient. I prepared my syringes, brushes, "a small rod of whalebone, which, instead of being



curved, was bent at nearly a right angle, one and a half inches from the end and armed with a small thin piece of sponge" (Horace Green, 1855),—now known as an applicator—bottles of the solutions of nitrate of silver, sulphate of zinc, chlorate of potash, tannin, muriate of ammonia, sulphate of copper, sulphate of iron, acetate of lead, etc., etc. I was "ready to begin the treatment that was to cure the patient" fully two weeks before she arrived at my office from St. Louis. I commenced her treatment in September, 1855. In about a month after this she refused to let me make another application, on account of the excessive pain that she was then experiencing continually, both day and night.

I was mortified, almost beyond endurance, by this outcome of the case. I thought of nothing but as to how I could honorably excuse my failure to bring about my promised cure. I showed Mrs. — my medical authorities, my notes and what the medical journals had to recommend, and, to my surprise, this was perfectly satisfactory to her. I however asked to be relieved of the charge of the case, but *she suggested the trial of remedies that would produce but little or no pain*, and while I was treating the patient in this way, that I should write to medical men of national reputation and ask their advice and their methods of treatment. The remedies that Mrs. — suggested were warm sweet cream and buttermilk, and an application once in a while of nitrate of silver to the surfaces upon which the crusts of inspissated secretion were seen to form. This course greatly pleased the patient.

My correspondence with some of the prominent medical men of the country developed several peculiarities, two of which must be shown as I relate my experience. A five dollar bill of the "Missouri State Bank," was placed inside of each letter. This brought *pages* of advice and a large number of prescriptions from every physician who was addressed, with the exception of the last one, and from this gentleman it brought a peculiar and characteristic answer, but one that greatly pleased me.

The advice and the prescriptions were followed as nearly as the patient's endurance could tolerate them, but *every one* of them, except the advice contained in the last letter, greatly aggravated the disease, and had the prescriptions been followed would certainly have killed the patient in a few months at the farthest. One letter contained advice taken, word for word, from pages 213, 214 and 215 of Horace Green's book, given me as original matter.

The last letter was from Prof. Stone, of New Orleans, La. In this letter he returned my five dollar bill, and advised me to quietly drop my attendance on my catarrhal patient, saying: "You can not



am the patient. I have the catarrh myself. I can not cure it, nor can any other man," and such like.

I had by this time, now two years since I commenced to make a constant study of the disease, learned enough from experience to be more highly pleased with this candid letter than with any one of the other letters I had received on this subject. I now had honorable company, and was not afraid to discontinue my attendance on my cured patient. I hastened to show the letter to my good friend, Dr. —. She was not surprised at his replies, but still insisted on treating the case by mild measures, which I did for a short time, but left my patient still uncured.

To show that I did not lose the confidence of Mrs. — I will say that I have her grandson now under treatment for nasal and throat ailment.

While I had this little girl under my care, I had quite a number of other cases of the same disease to treat, I think not less than thirty different individuals. At that time I was reading five medical journals in the hope of finding something in them to assist me in my search for knowledge concerning the treatment of nasal catarrh.

During the winter of 1857 I procured the heads of two cadavers in Chicago, Ill. and for the first time in my life saw the nasal cavities as they can only be seen on dissection, nothing of the kind having been shown me while attending medical college, nor did I know of any physician who had seen these cavities dissected. Of course these anterior-posterior and transverse sections of the head did not assist me in my efforts to find a remedy to cure the inflamed membrane, but it taught me the location of the disease, and rendered my previous studies of the anatomy of these parts far more intelligible and far easier to retain in my memory. At this time I had all the medical works that could give me any knowledge on this part of the body. I had Todd and Bowman's Physiological Anatomy—a very valuable work—H.H. Smith's Surgical Anatomy—a work that was highly and beautifully illustrated—Horace Green on the Air Passages, and a much larger library than any physician of my acquaintance. When I discontinued the treatment of my young patient, I firmly resolved that I would continue the study of this disease until I became much more satisfied with my efforts for its anchoration, if I should not be able to cure it.

I then found that there were so many suffering from this complaint, that I was certain there were a sufficient number of cases in every large city to occupy one man's time constantly. Another matter urged me to pursue this subject, namely: I am physically disabled, and hence unequal to the labor of a general practice, especially at an advanced age; and knowing that a "limited practice" could



be honorably followed, I determined, against the earnest protestations of my relatives and friends to continue this work.

To do so more thoroughly than I could at home, I attended another course in the winter of 1861-62, at the Jefferson Medical College, and had the privilege of almost daily examinations of patients at the Blockley hospital, granted to me through the influence of the late Prof. S. D. Gross. Here I learned, to my great surprise, that I was far more thoroughly informed on the anatomy of the nose, and the location of nasal catarrh than any one of the assistant teachers. Not only this, but I soon saw that nasal disease was considered too insignificant to merit any consideration. It soon became evident to me, that the obloquy cast upon innocent Dr. Horace Green, by the leading physicians of New York City, had the effect of deterring every student from investigating the diseases of the air passages. This, more than any other thing, caused me to come to the conclusion that I had better, in self defence, discontinue my search for an object that would prove to be an *ignis fatuus*, a name given to my efforts in this direction by my friends.

The war now called for the aid of physicians; this brought me to St. Louis. During conversations with a number of physicians in this city, I mentioned my researches. Most of these physicians recommended me to continue my study and to ask for a removal to the U. S. General Hospital at Jefferson Barracks, Mo. After a few months delay, I was transferred to that hospital from one in this city. While at the Jeff. Bks. hospital, I had most excellent opportunities. I had a ward that contained oftentimes as many as 200 patients, and at one time I had fully 80 nose and throat cases under my care. I had the advantage of seeing them as many times each day as I desired, and knew exactly how they took care of themselves. I also had the advantages that came from making a large number of post-mortem examinations.\*

After having the advantage of a daily practice in the treatment of the diseases of the nose, throat and ears in this hospital, from Dec. 1862 to Oct. 1865, I resolved to limit my practice to the treatment of these organs. To more thoroughly prepare myself to do so equal to the best in the country, I visited our large Eastern cities again, that I might see as well as learn what was known there concerning these diseases. In New York city I took a long private course with the late Dr. Lewis Ellberg, and private courses from other prominent physicians in the treatment of the diseases of the nose throat and ears. I spent from November 1865 to the last of May 1866 in taking these courses.

\* See page 936.



On June 18, 1866, I opened an office in St. Louis and have limited my practice, since that time, to the treatment of these diseases. I have since twice visited Europe in the search of information concerning these diseases. I can say, without the least exaggeration, that the subject of rhinal disease has not been off my mind since I commenced to treat my first catarrhal patient in September, 1855, and with a few months intermission, I have treated patients affected with rhinal disease every day since that time, now nearly thirty-three years.







THE  
MEDICAL, SURGICAL  
AND  
HYGIENIC TREATMENT  
OF  
CHRONIC DISEASES  
OF THE  
NOSE, THROAT AND EARS.

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PART I.

ANATOMY; PHYSIOLOGY; PATHOLOGY; ETI-  
OLOGY, and SYMPTOMATOLOGY.

In the treatment of this PART, it is assumed that the reader is a practitioner of medicine, and that certain required preliminary studies have been accomplished; nevertheless, my aim has been to be plain in description, and while dealing in elements, I have, when possible, combined them with practice.

RHINITIS and its SEQUELÆ, are the subjects discussed in this work. Inasmuch as it is held here that Laryngitis and Otitis are diseases that are extensions of rhinitis, and because the throat and ears are almost



always complicated with severe nasal inflammation, the same elementary subjects, such as anatomy, physiology, etc., will be given for all three organs.

To be enabled rationally to employ means to relieve the diseases that effect these organs, the various symptoms accompanying them should be known; but the symptomatology would be of little assistance if the causes were not mentioned; nor would the etiology be understood without a knowledge of the pathology. It is well known that the latter subject loses much of its importance if the normal actions of the parts are unknown, and this again, is dependant upon a knowledge of the mechanical structures of the parts themselves. It follows, that to successfully treat the diseases of the Nose, Throat and Ears, all of the above subjects should be thoroughly understood. This PART will be devoted to these FIVE SUBJECTS, each of which will form a Section, as follows: SECTION I, **Anatomy**; SECTION II, **Physiology**; SECTION III, **Pathology**; SECTION IV, **Etiology**; and SECTION V, **Symptomatology**.

These five elementary subjects contain the foundation of RHINOLOGY. The practitioner will rank high or low according as he is well or illy grounded in them.



## SECTION I.

### Practical Anatomy of the Nose, Throat and Ears.

Only so much of the anatomy of the Nose, Throat and Ears will be given, as is required to aid the practitioner in arriving at a diagnosis; in making local applications of therapeutic agents; and in performing operations.

While preparing this Section, the anatomical works of Gray, Holden, Wilson, Darling and Ranney, Masse and Ranney, Ranney, and Dwight have been consulted. While laying claim to a knowledge of the anatomical construction of the parts involved in the catarrhal diseases of the Nose, Throat and Ears, from numerous dissections during the last thirty years, yet I chose to rely almost entirely on acknowledged text-books for the matter contained in this Section.



## CHAPTER I.

### PRACTICAL ANATOMY OF THE NOSE; THE NASAL AND PHARYNGO-NASAL CAVITIES; THE SPHENOIDAL AND FRONTAL SINUSES; THE ETHMOIDAL CELLS AND THE ANTRA OF HIGHMORE.

1. **THE NOSE** is the most prominent feature of the face, and is the special organ of the sense of smell. It consists essentially of two parts; one external, the nose; the other internal, the nasal fossæ.

Presuming that the reader is familiar with the bones composing the skeleton of the nose, only the outline of the parts will be given. The nose is the triangular pyramid projecting from the center of the face, immediately above the upper lip. Superiorly, it is connected with the forehead by means of a narrow bridge; inferiorly it presents two openings, the nostrils, which overhang the mouth, and are so constructed that the smell of all odorous substances must be received by the nose, before they can be introduced within the lips. The septum between the nostrils is called the **columna**. The internal margins of these openings are provided with a number of stiff hairs (*vibrissæ*) which project across the passages and act as filters in preventing the introduction of foreign substances, such as dust, insects, etc., with the current of air intended for respiration.

The anatomical elements of which the nose is composed are: the integument; muscles; bones; fibro-cartilages; mucous membrane; blood-vessels; and nerves.



2. **The Integument** forming the tip (lobulus) and wings (alæ) of the nose is extremely thick and dense, so as to be with difficulty separated from the fibro-cartilage. It is furnished with a number of sebaceous follicles, which by their oily secretion protect the extremity of the nose in excessive alterations of temperature. The sebaceous matter of these follicles becomes of a dark color upon the surface from the attraction of carbonaceous matter floating in the atmosphere; hence the spotted appearance which the tip of the nose presents in large cities. When the integument is firmly compressed, the inspissated sebaceous secretion is squeezed out from the follicles, and, retaining the form of their interior, has the appearance of small white maggots with black heads.

3. **The Muscles** are the pyramidalis nasi; compressor nasi; depressor alæ nasi; levator labii superioris alæque nasi; dilatator naris posterior and anterior; and Gray adds the compressor narium minor.

4. **The Bones** of the nose are the nasal, and the nasal processes of the superior maxillary.

5. **The Fibro-cartilages** give form and stability to the outwork of the nose, providing at the same time, by their elasticity against injuries. There are five of them, namely: the cartilage of the septum; two lateral cartilages; and two (sometimes as high as four) sesmoid cartilages. Besides these there are some small irregular cartilaginous plates, which will be discovered in various dissections, but which are not worth a separate description. The whole of these cartilages are connected with each other, and to the bones by the perichondrium, which, from its membranous structure, permits of the freedom of motion existing between them.

6. **The Mucous Membrane**, lining the interior of the nose is continuous with the skin externally, and with the conjunctival membrane of the nasal fossæ within. Around the entrance of the nostrils, internally, it is provided with vibrissæ.



**7. The Blood-vessels.** The arterial supply is from the *lateralis nasi*, from the facial and the *nasalis septi*, from the superior coronary artery, which supplies the *alæ* and septum; the sides and bridge of the nose, from the nasal branches of the ophthalmic and the infra-orbital. The veins of the nose terminate in the facial and ophthalmic.

**8. The Nerves** of the nose are branches of the facial, infra-orbital, and infra-trochlear and a filament from the nasal branches of the ophthalmic.

**9. The Nasal Fossæ** are two compressed, irregular cavities, extending backward from the anterior nares in front, to the posterior nares at the upper portion of the pharyngo-nasal cavity. They are bounded above by the sphenoid and ethmoid bones; below, by the hard palate. In the middle line they are separated from each other by the *septum nasi*. Upon the outer wall of each fossa, in the dried skull, are three projecting processes, termed spongy bones. The two superior belong to the ethmoid bone, the lowest is a separate bone, the inferior turbinated bone. In the fresh fossa these projecting processes are covered with mucous membrane, called turbinated processes, and serve to increase its surface by their projection and convoluted form.

These large fleshy, vascular processes are called "bones" by all authors who speak of them; they usually state that there are three "turbinated bones," in each nasal chamber, when, in reality, they can only be seen in the dried skull. If they were bones, thinly covered by mucous membrane, as the bones of the ear, then they might take the name of the bone, but since their osseous tissue is not one-tenth of their bulk, these projections should be called processes, as they really are.

The American Rhinological Association at its Third Annual Meeting, held in Lexington, Ky., in Oct. 1885, advised the substitution of "turbinated processes" in the place of "turbinated bones".

**10. The Nasal Spaces** intervening between these turbinated processes are styled "meatuses".\* The inferior nasal space or meatus, is the largest of the three.

---

\* Dwight's Anatomy of the Head.



It is overhung by the inferior turbinated process, and is the chief respiratory tract through the nasal cavity. The nostril in the adult male is fully one-quarter of an inch above its floor, its entrance being guarded by a raised fold of skin. An instrument, therefore, must be pointed upward and then immediately depressed to pass along the inferior nasal space or meatus.

I do not like the name "**meatus**" for these enlargements of the nasal fossæ. It tends to mislead one into the supposition that there are three separate passages in each nasal fossa, when such is not the case; they are only **NASAL SPACES** between the turbinated processes.

Under cover of the inferior turbinated process, at least one-quarter of an inch from its anterior portion, is the **valve-like opening of the lachrymal canal**. This opening is partially hidden by either a single or double valvular fold of mucous membrane.

The nasal space, between the inferior and middle turbinated processes, is called the middle meatus; that between the superior and middle turbinated processes, the superior meatus. An anatomical peculiarity of the skull of the negro race is often exhibited in the nasal fossæ, **a fourth meatus**, which lies above the superior turbinated process.\* The openings that make their entrance into these meatuses will be mentioned in detail, in the description of the turbinated processes; the following will show them collectively:

Each nasal fossa has six openings into cavities which are situated as follows.	{	In the superior meatus 2.	{	Sphenoidal sinus.
				Posterior ethmoidal cells.
				Antr. of Highmore.
	{	In the middle meatus 3.	{	Anterior ethmoidal cells.
				Frontal sinus.
	{	In the inferior meatus 1.	{	Lachrymal canal.

11. The mucous membrane of the nasal fossæ is called pituitary or Schneiderian. It lines the passages of the nose and sinuses, cells, canals and cavities, com-

\* Ranney's Practical Anatomy.



municating with it and adheres very firmly to the periosteum or perichondrium, over which it lies. It is continuous with the general pulmo-digestive mucous membrane. It is disposed in thick and loose folds at the lower border of the turbinated processes. The membrane varies in thickness and vascularity in different parts of the nasal cavities. Upon the lower half of the septum nasi and the inferior turbinated processes it is much thicker than elsewhere, owing to a fine plexus of arteries and veins in the submucous tissue. In the sinuses, cells, canals and cavities, the mucous membrane is thinner, less vascular, and closely adherent to the walls. If the mucous membrane was not very vascular, the air inspired would not be heated to the normal temperature, nor would there be such a copious flow of mucus which is essential to keep moist the membrane and the air before the latter enters the lungs.

Schneider, of Wittenberg, in 1660 showed that the secretion of the nose proceeded from the mucous membrane, and not from the brain, as was formerly imagined.

**12. The Character of the Mucous Membrane** varies in different parts of the nasal cavities. In the neighborhood of the nostrils it is furnished with papillæ, with a squamous epithelium like the skin, and a few small hair called vibrissæ. Along the respiratory tract—the nasal space under the inferior turbinated processes—the epithelium is columnar and ciliated; but upon the middle and superior turbinated processes and upon the upper half of the septum nasi, the epithelium is columnar but not ciliated. This subject will be mentioned a little more fully when describing the turbinated processes.

**13. The Arteries of the Nasal Fossæ** are derived from the anterior and posterior ethmoidal branches of the ophthalmic, which supply the roof of the nose, the anterior and posterior ethmoidal cells, and the frontal sinuses; from the nasal artery (sphenopalatine) of the internal maxillary, which supplies the septum, the nasal spaces or meatuses, and the turbinated processes; from the



posterior alveolar branch of the internal maxillary, which supplies the mucous membrane of the antra of Highmore.

**14. The Veins** correspond with the arteries, and like them form close plexuses beneath the mucous membrane. Some of the veins accompany the sphenopalatine artery, and pass through sphenopalatine foramen; others join the facial vein; some accompany the ethmoidal arteries, and terminate in the ophthalmic vein; and a number communicate with the veins *within* the cranium, through the foramen in the cribriform plate of the ethmoid bone, also through the ophthalmic vein and the cavernous sinus. These communications explain the relief frequently afforded by hæmorrhage from the nose in cases of cerebral congestion.\*

**15. The Nerves of the Nasal Fossæ.** The mucous membrane is supplied with sensory nerves by the fifth pair. Thus, its roof is supplied by filaments from the external division of the nasal branch of the ophthalmic, and from the Vidian; the outer wall, by filaments from the superior nasal branches of the sphenopalatine ganglion, from the nasal, from the inner branch of the anterior dental, and from the inferior nasal branches of the large palatine nerve; its septum, by the septal branch of the nasal nerve, by the naso-palatine, and by the Vidian; its floor, by the naso-palatine, and the inferior nasal branches of the large palatine nerve.

**16. The Olfactory** is the special nerve of smell. Its branches, proceeding from each olfactory bulb, about twenty for each nasal fossa, pass through the foramina in the cribriform plate of the ethmoid bone. In its passage, each filament is surrounded by a tubular prolongation from the dura mater and pia mater; the dura mater being lost on the periosteum lining the nasal passage; the pia mater being lost in the neurilemma of the nerve. As they enter the nares, they are arranged into three groups: an inner or septal group, the largest, which tra-

\* Holden's Human Anatomy.



verses the grooves in the upper third of the septum; a middle group which ramifies the roof of the nose; and an outer set, which passes through grooves and divided into an anterior and posterior group; the anterior being distributed over the superior turbinated process and the posterior, over the os planum of the ethmoid bone and the middle turbinated process.

17. The filaments pass downward obliquely between the mucous membrane and the periosteum; they unite in a plexiform network, with small elongated intervals, and become gradually lost in the mucous membrane. Gray says their mode of termination is unknown, while Holden, in speaking of the mucous membrane in the olfactory region says: "The columnar epithelial cells taper off at their deep ends to fine processes. Lying between these processes are fusiform cells, with central well defined nuclei, to which the name of *olfactory cells* has been given; and it is probable that the attenuated processes which pass inward from these cells are in direct connection with the terminal fibrils of the olfactory nerve."

Microscopically the olfactory nerve differs from other cerebral nerves, in containing gray matter in its interior, and being soft, pulpy in consistence, in containing no white substance of Schwann, and in their axis-cylinder being provided with a very distinct nucleated sheath with fewer nuclei and at longer intervals; its filaments are not divisible into fibrillæ and resemble the gelatinous fibers, in being nucleated, and are of a finely granular texture.

18. **Central Antero-posterior Section of the Head.** An antero-posterior section of the head shows the position and partially the formation of the three turbinated processes, the location of the origin of the inflammation in all catarrhal diseases of the nose, throat and ears; the pharyngo-nasal cavity, the second location diseased previous to the throat or ears becoming implicated; the soft palate and uvula, the organs that are always affected previous to or comitant\* with vocal disability; the sphenoi-

\* There is no such word *comitant* but there should be. T. F. R.



dal sinuses, the disease of which always affects the patient mentally; the frontal sinuses, the inflammation of which always produces headaches; the mouth of the Eustachian tube, the part affected previous to all catarrhal disease of the middle ear and most of the internal ear troubles. It is the most important dissection of the head that can be made, because it shows more of the diseased surface than can be done by any other section. It is one that can easily be made, and should always be made before every class in the dissecting room. The topography of the parts thus exposed should be so well memorized that they will never be forgotten. The operator, either in making local medicated applications, or in operative procedures, must constantly bear in mind the relations of these parts to each other.

**19. The Inferior Turbinated Processes.** These are the largest and longest of the three processes. They are formed, mostly by very thick and vascular mucous membrane that covers the projecting portion of the inferior turbinated bones. When these bones are denuded of their fleshy covering they are found to be mere shells, and when dry, are exceedingly fragile.

Their arterial supply comes from the nasal branch of the inferior maxillary. The veins correspond with the arteries, and like them, form close plexuses beneath the mucous membrane.

The nerves of these processes are branches from the anterior dental and the anterior palatine.

The mucous membrane along their lower borders, as well as under them, is lined with columnar, ciliated epithelium.

**20.** Under these processes are found the lower opening of the lachrymal canal. This passage is from six to eight lines long, and narrowest in the middle of its course. The opening of each side lies about a quarter of an inch behind the bony edge of the nostril; it is about one-twelfth of an inch in diameter and is slit-shaped.

**21. Middle Turbinated Processes.** The osseous



portion of each one of these processes is formed of a thin lamella of bone, which descends from the under surface of the cribriform plate of the ethmoid bone; it terminates below in a free convoluted margin, forming the most dependent portion of the process. The bone is covered by a thick coating of vascular mucous membrane. These processes are a little over three-fourths the length of the inferior turbinated processes, and reach a little further back.

Their **arteries** and **veins** are the sphenopalatine; both form a close network beneath the mucous membrane.

The **nerves** are the olfactory, and the superior nasal (anterior), one of the internal branches of the sphenopalatine ganglion.

The **mucous membrane** over these processes is lined with epithelium that is columnar, but not ciliated. In this region the membrane is extremely vascular, thick, and studded with branched mucous glands; the epithelial cells taper off at their deep ends into fine processes, and lying between these processes are fusiform cells, with central well-defined nuclei, to which the name of *olfactory cells*\* has been given; and it is probable that the attenuated processes which pass inward from these cells are in direct connection with the terminal fibrils of the olfactory nerve.†

**22. The Canals** from the frontal sinuses, from the the anterior ethmoidal cells and from the antrum of Highmore find their exit under these processes.

If one of these processes is removed, there is seen under it a curved fold bounding a groove which is convex anteriorly, and which ends in front in a small opening through which a probe may be passed upward into the frontal sinus. This is the infundibulum. "The openings of the antrum into the nose may be one or two in number. One always opens into this infundibulum, leaving the antrum just under its roof and consequently being

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\* Max Schultze, Med. Central-blatt. 1854.

† Holden's Anatomy.



quite incapable of draining it."\* This important fact should be borne in mind when the subject of the function of the Eustachian tube is discussed.

**23. Superior Turbinated Processes.** These are the smallest of the three turbinated processes. Frequently they cannot be seen either from the anterior or posterior nares. The osseous portion of these processes consists of a thin curved plate projecting downward from the upper portion of the ethmoid bone.

Their **arteries** are branches of the sphenopalatine; some of the **veins** terminate in the ophthalmic; and others pass upward through the cribriform plate of the ethmoid bone and the foramen cecum, and enter the anterior portion of the skull. "In the infant the longitudinal sinus opens into the nares."\*

The **nerves** are the olfactory and the superior nasal branches (anterior) from the internal branches of the sphenopalatine and the Vidian.

**24.** Under these processes are found the very minute openings to the posterior ethmoidal cells and the small openings to the sphenoidal cavities. Neither of these canals is capable of draining the cavities completely.

The character of the **mucous membrane** of this process is similar to that of the middle turbinated process.

**25. Nasal Septum.** This is formed in front by a plate of cartilage; in the upper and middle portion by the perpendicular plate of the ethmoid bone; in the lower and posterior portion, by the vomer. The cartilaginous portion is the part that most frequently requires the attention of the physician; this is thicker at its margin than at its center, that is, in the healthy condition. It is usually bent along its middle portion toward the left; much less frequently—about one in ten to twelve times—toward the right.

In its upper portion, its **blood-vessels** are the same as those of the superior turbinated processes, and in its

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\* Dwight's Anatomy of the Head.



lower portion, that of the inferior turbinated process.

**The nerves.** The olfactory is found on the upper half. The mucous membrane of the anterior portion of the septum is supplied by the internal branch of the nasal nerve of the ophthalmic, the naso-palatine nerve, a branch of the sphenopalatine ganglion, supplies the lower portion; and the Vidian nerve supplies the back portion of the septum.

The epithelium of the mucous membrane is columnar and ciliated along the lower portion of the septum, and columnar only on the upper portion.

**26. The Pharyngo-nasal Cavity.** The upper portion of this cavity is situated behind the posterior nares. Its vault is formed by the body of the sphenoid bone and by the basilar process of the occipital bone; its posterior wall by the bodies of the first and second cervical vertebrae; its sides by the styloid and pterygoid muscles, and by the internal carotid arteries, the internal jugular veins, the glosso-pharyngeal, the pneumogastric, the spinal accessory, the hypo-glossal and the sympathetic nerves; and the posterior surface of the soft palate forms its anterior wall, except during the act of deglutition, when it forms the floor or lower boundary. The mouths of the Eustachian tubes are found in its sides, and are situated in a line behind the inferior turbinated processes.

**27. The Mucous Membrane** above the soft palate is very delicate and is lined with ciliated and columnar epithelium. That portion of the posterior wall touched by the soft palate during the act of deglutition, resembles the epithelium of the mouth, being squamous in character. Much fibrous tissue is found under the mucous membrane of the upper portion of the cavity and the posterior part of the roof of the nose. For this reason most of the growths, such as polypi etc., found in these regions, are fibrous in formation.

**28. The Arteries** supplied to the pharyngo-nasal cavity are: *a*, the ascending pharyngeal, a branch of the internal carotid; *b*, the pterygo-palatine, a branch of the



internal maxillary; *c*, the inferior or ascending palatine, a branch of the facial; *d*, the posterior or descending palatine, a branch of the internal maxillary; and *e*, the sphenopalatine, also a branch of the internal maxillary.

29. The ascending pharyngeal artery is so important as to deserve an extended description. This artery arises from the external carotid, near the bifurcation of the common carotid. It ascends vertically between the external carotid artery and the lateral wall of the pharynx to the base of the skull.

It gives off three sets of branches:

*a*. External branches which supply the superior cervical ganglion, the pneumogastric and hypoglossal nerves, and the prevertebral lymphatic glands. They anastomose with the ascending cervical artery.

*b*. The pharyngeal branches, or internal set pass to the superior and middle constrictor muscles of the pharynx and the stylo-pharyngeus muscles which they supply; also the mucous membrane of the pharynx.\* The largest of the pharyngeal branches passes inward, running upon the superior constrictor muscles, and sends branches to the Eustachian tubes, tonsils, and soft palate. The course of the branches in the soft palate is as follows: after passing the superior constrictor muscles, the palatine branch divides into two twigs, one of which arches over the upper margin of the soft palate on its anterior surface and just beneath its mucous membrane, while the other arches over the inferior border in the same relative position.

*c*. The third set is distributed to the meninges of the brain, and pass vertically upward until they enter the cavity of the cranium. This set consists of several branches, one, the posterior meningeal branch, which passes through the jugular foramen. The jugular vein, and the spinal accessory, pneumogastric and glosso-pharyngeal.

\* B. & H. Holden and Gray say that it supplies the inferior constrictor muscles also.



ryngeal nerves escape from the cranium through the same foramen. A second branch passes through the foramen basis cranii, and a third is occasionally found to pass through the anterior condyloid foramen. These branches, after their entrance into the cavity of the skull, are all distributed to the dura mater.

**30. The Pharyngeal Plexus of Veins.** The pharyngeal vein receives some meningeal branches; also veins from the soft palate and Eustachian tubes, which uniting, form the pharyngeal plexus. Upon removing the fascia from the pharyngeal muscles, these veins are seen ramifying and communicating in all directions. They constitute the pharyngeal venous plexus, and terminate in the internal jugular veins.

**31. The Nerves are:** *a*, the pharyngeal plexus, which is formed by the junction of branches from the pneumogastric, glosso-pharyngeal, superior laryngeal, and sympathetic nerves; *b*, the glosso-pharyngeal, which is the nerve of sensation for the mucous membrane, and of motion to the pharyngeal muscles, as well as a special, nerve of taste; *c*, the pterygo-palatine, a branch of the sphenopalatine ganglion, is distributed to the lining membrane of the cavity behind the Eustachian tube; *d*, the spinal accessory, by branches to the pharyngeal and superior laryngeal; and *e*, the pharyngeal branch of the pneumogastric, the principal motor nerve of the pharynx and soft palate. "These nerves and the sympathetic are in the freest intercommunication. According to Jacob, of Munich (Virchow and Hirsch. *Jahresbericht*, 1873), they form two plexuses, an inter-muscular and a sub-mucous precisely analogous to those of Auerbach and Meissner in the intestines."\*

**32. The Soft Palate.** This important organ is composed mostly of the following muscles: the levator palati; the tensor palati; the palato-glossi, which form the anterior pillars of the arch of the soft palate; the palato-pharyngeal.

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\* Dwight's Anatomy of the Head.



ryngi, which form the posterior pillars of the arch, and—according to works on anatomy—the azygos uvulæ, making five muscles on each side.

**33.** The soft palate is hung to the posterior portion of the hard palate. During deglutition it forms a septum between the pharynx and pharyngo-nasal cavity, and consists of a fold of mucous membrane, which incloses muscles, blood vessels, nerves and mucous glands. Its usual position is a pendant one, with its anterior surface concave and its posterior surface convex. Hanging downward and forward, with its under surface slightly concave, is a small grape-shaped appendage, the uvula. The soft palate is connected with the sides of the base of the tongue and with the pharynx, by two folds of mucous membrane—each enclosing a muscle—called the anterior and posterior pillars.

**34. The Anterior Pillars** describe a curve outward, downward and forward, from the base of the uvula to the base of the tongue, as can be plainly seen when the tongue is extruded. They are formed by the palato-glossi muscles.

**35. The Posterior Pillars** commence at the base of the uvula and run outward, downward and backward, and form the posterior free edge of the soft palate. They terminate at the side of the pharynx and posterior to the vocal of each side. As seen from the description, the pillars diverge from their origin and separating, as they pass outward, form a triangle with the tonsils between them at the base.

**36. The Levator Palati Muscle** arises from the under aspect of the apex of the petrous portion of the temporal bone, and from the under part of the cartilage of the Eustachian tube. It descends obliquely inward, and then passes over the concave border of the superior constrictor muscle into the pharynx, where its fibers spread out and are inserted along the upper surface of the soft palate, below the so-called azygos uvulæ muscles, meeting those of its fellow in the median line. Its action



is to raise the soft palate, so as to make it horizontal in deglutition. It is supplied by the descending palatine nerve, a branch from the spheno-palatine ganglion.

**37. The Tensor Palati Muscle** is situated between the internal pterygoid muscle and the internal pterygoid plate of the sphenoid bone. It arises by a flattened muscular belly from the scaphoid fossa at the base of the internal pterygoid plate, and from the spine of the sphenoid bone; from the vaginal process of the temporal bone and from the outer and anterior side of the cartilaginous portion of the Eustachian tube. It then descends perpendicularly, and ends in a tendon which winds around the hamular process. Now, changing its direction fully 90°, the tendon passes horizontally inward, and expands into a broad aponeurosis on the anterior surface of the soft palate, and is inserted into the horizontal plate of the hard palate, and is also connected with its fellow of the opposite side. Its nerve is derived from the otic ganglion and enters the muscle on its inner aspect.

**38. The Palato-Glossus and Palato-Pharyngeus Muscles** are contained within the arches or pillars of the soft palate. Both are supplied by the descending palatine branches of the spheno-palatine ganglion.

**39. The So-called Azygos Uvulæ Muscles.** In February, 1877, while I was dissecting a soft palate, I discovered that what is called the azygos uvular muscles are two sets or pairs of muscles. The upper pair, or as I have named them, the **ELEVATOR PALATI MUSCLES**, arise from the posterior nasal spine of the palate bone and from the contiguous tendinous aponeurosis of the soft palate, pass down the middle of the soft palate, and are inserted at about the junction of the lower third with the middle third of the palate, interlacing with the fibers of the muscles below. The insertion occupies about one-fifth to one-sixth of the width, antero-posteriorly, of the soft palate. The lower pair, or, as I have named them, the **ELEVATOR UVULÆ MUSCLES**, arise from the place of insertion of the elevator palati mus-



cles—their fibers interlacing with them—pass downward, and are inserted into the connective tissue of the lower extremity of the uvula and form this organ.

These four muscles form a ridge on the back of the soft palate, which can be seen with the pharyngeal mirror. I have called this ridge the **AZYGOS PROMINENCE**. See *Az-Pr.*, figure 1.



Figure 1. Posterior view of the posterior nasal passages, the posterior surface of the soft palate and base of the tongue; *Pt. N.* posterior nares; *E. t.* Eustachian tubes; *Az-Pr.* azygos prominence, on the upper surface of the soft palate, formed by the elevator muscles; *S.L.* Semilunar openings formed by the tongue, uvula and soft palate; *U.* base of tongue; *Ep.* epiglottis; *U.* uvula.

40. The action of these muscles can be plainly seen on inspection of the soft palate while the mouth is open and the tongue slightly depressed. On some persons the effect of these contractions are much more marked than on others. Contraction of the **elevator palati**, raises the soft palate without raising the uvula, and contraction of the **elevator uvulæ**, raises the uvula without producing the least effect on the soft palate. If the same muscles ran from the nasal septum down to the lowest extremity of the uvula, as stated in every work on anatomy, then every contraction would, of necessity, raise the uvula *first*, and the soft palate *next*; but we can see the soft palate raised so high that it will cover the mouths of the Eustachian tubes, and not produce the least effect on the



uvula; and again we can see the uvula drawn almost completely out of sight, while the soft palate is either hanging pendant or raised to its highest point; or when it is a part of the way down to its most pendant position; thus showing plainly that the elevation of the uvula and of the soft palate is controlled by two distinct sets of muscles.

41. The separate contractions of these two sets of muscles can be beautifully demonstrated by the induced current of electricity, when the electrode is placed on the middle of the **elevator palati**. Contraction instantly takes place, causing elevation of the soft palate, but no motion of the uvula. If the electrode is lowered so as to be placed in the center of the **elevator uvulæ** muscles, contraction instantly takes place, causing elevation of the uvula, but not in the least affecting the soft palate.

The contraction of these four muscles on the posterior surface of the soft palate forms a ridge, that I have named the **Azygos Prominence**, shown in figure 1, *Az-Pr*. This prominence has important physiological functions to perform in vocalization, as will be shown hereafter.

42. The mucous membrane of the soft palate is quite thin, and is covered with squamous epithelium on its anterior and posterior surfaces, except near the mouths of the Eustachian tubes, where it is columnar and ciliated.

43. **The Nerves** are: (*a*) a branch of the otic ganglion, which goes to the tensor palati; (*b*) the facial, through the connection of its trunk with the Vidian by the petrosal nerves, which go to the levator palati and the elevators palati and uvulæ muscles; and (*c*) the posterior palatine nerve, a branch of Meckel's ganglion, which supplies the uvula, the palatoglossi and the palato-pharyngeal muscles.

44. **The Sphenoidal Sinuses.** These cavities are found in the body of the sphenoid bone. They are variable in size, in different heads, and vary in capacity relatively to the size of the body of the bone. They are always irregular, and are divided nearly in the middle



Dwight says, invariably on one side of the middle—by a more or less complete perpendicular bony septum. These sinuses do not exist in childhood, and they increase in size as age advances. Their openings are at the anterior wall, and the upper part of this wall, and communicate with the upper and back part of the nasal chambers, above the superior turbinated processes; sometimes they communicate with the posterior ethmoidal cells.

The sphenopalatine **artery** and **nerve** supply the mucous membrane; the epithelium of this mucous membrane is columnar and ciliated.

**45. The Frontal Sinuses.** These, like the antra of Highmore, the ethmoidal cells and sphenoidal sinuses, are not seen in childhood. They increase in size as age advances. They are two irregular cavities, and are situated between the two tables of the skull; in the median line they are separated from each other by a bony septum, which occasionally is not complete. The sinuses extend upward and outward at a variable distance, and are variable in size in different persons, being larger in men than in women. Frequently they have *incomplete, bony sub-divisions, circular in form*. They communicate with the nasal chambers by the infundibulum, which opens under the middle turbinated processes, consequently, like all cavities communicating with the nose, they are lined with mucous membrane, whose epithelium is columnar and ciliated.

The anterior ethmoidal **artery** supplies the sinuses, and the anterior ethmoidal cells and then entering the cranium, divides into meningeal branches, which supply the adjacent dura mater.

**46. The Ethmoidal Cells.** There are anterior and posterior ethmoidal cells on each side of the nasal septum, the former being more numerous. These cells or sinuses are found in the lateral portions of the ethmoid bone, and consist of thin-walled cellular cavities; they are formed on the outside by a thin, smooth, square plate of bone, the os planum—which forms a part of the inner



wall of the orbit of the eye—and by the bones forming the superior and middle turbinated processes on the inside. The anterior and posterior cells never communicate with each other, this is invariable. The anterior cells communicate with the frontal sinuses by means of a long tortuous cellular canal, the infundibulum, and have their openings under the middle turbinated processes. The posterior cells are less numerous and have their openings under the superior turbinated processes, and occasionally communicate with the sphenoidal sinuses.

The **arteries** supplying the mucous membrane of the ethmoidal cells, are the branches of the sphenopalatine, called the anterior and posterior ethmoidal arteries; they go to the cells that correspond to the names.

The **nerves**, are the superior nasal, four or five in number, (branches of the sphenopalatine ganglion), and are distributed to both anterior and posterior cells.

**47. The Antrum of Highmore.** This is the largest air cavity of the head, and is found in the body of the superior maxillary bone. It is also called the maxillary sinus, and antrum maxillare. The cavity, in a head 40 years old, is large enough to contain fully two drachms of fluid. A large sized musket-ball has been known to remain loose within it for years, and in some instances such balls have been known to escape through the roof of the mouth.\* Drake reports a case where a woman endeavored to explore the cavity of the antrum, through the socket of a tooth with a quill pen, and to her horror introduced the whole six inches of its length by its assuming a spiral direction within the cavity, and thus curling upon itself. At adult age, the walls are very thin. The orbital plate of the eye forms its roof; the facial surface forms its anterior wall; the alveolar processes form its floor; and the zygomatic surface forms its posterior wall. The walls are much thicker in childhood than in adult age.

**48. The Roots of the First and Second Molar**

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\* Ranney's Practical Anatomy.



Teeth form conical prominences that project up into the floor. The number of teeth whose roots are in close relation with the floor of the antrum is variable. The cavity may extend so as to allow "all the teeth of the true maxilla, from the canine to the *dens sapientiæ*.\*" As stated in topic 22, there is one and sometimes two openings, under the middle turbinated process, from this cavity into the nasal chambers.

The mucous membrane lining it is continuous with that of the nose, but much less vascular and is covered with ciliated epithelium; mucous glands are quite numerous in these cavities.

The **arteries** of the antrum are branches of the sphenopalatine and a few branches of the infra-orbital.

The **nerves** are branches from the superior maxillary, from Meckel's ganglion and from the anterior dental.

## CHAPTER II.

### PRACTICAL ANATOMY OF THE PHARYNX, TONSILS, LARYNX, TRACHEA, BRONCHIAL TUBES AND AIR CELLS OF THE LUNGS.

**49. THE PHARYNX.** This cavity is below the pharyngo-nasal cavity, behind the mouth and extends down to the arytenoid processes. The upper portion of it can be seen with the unaided eye, the lower portion requires the aid of the pharyngeal reflector.

The mucous membrane is covered by epithelium of the squamous variety.

The vascular and nervous supply is the same as that of

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\* Salter, on Abscess of the Antrum of Highmore, in Holmes' System of Surgery.



the pharyngo-nasal cavity, seen in topics 28 to 31.

**50. The Tonsils** are glandular bodies, situated between the anterior and posterior pillars of the soft palate. If they are in a **HEALTHY** condition **THEY DO NOT PROJECT WITHIN SIGHT**, if they are in sight, then they are in a more or less diseased condition.

The arteries supplying the tonsils are the *dorsalis linguae*, from the lingual artery; the descending palatine and tonsillar arteries, from the facial; the ascending pharyngeal, from the external carotid, and the descending palatine branch of the internal maxillary artery.

The veins pour their contents into the tonsillar plexus that is located on the outer side of the tonsil.

The nerves are: the posterior palatine, a branch from Meckel's ganglion; a branch from the fifth nerve, and one from the glosso-pharyngeal.

Between the tonsils and the internal carotid artery is the ascending pharyngeal artery, the superior constrictor muscle and the aponeurosis of the pharynx.

**51. THE LARYNX**, the organ of the voice, is the superior dilated portion of the air passage to the lungs. This organ is composed of cartilages, ligaments, vessels, nerves and mucous membrane, and contains the structures concerned in vocalization. It is situated in the fore part of the neck, between the trachea and the base of the tongue. The framework is formed of nine cartilages: the thyroid, the cricoid, the two arytenoid, the two cornicula laryngis (cartilages of Santorini), the two cuneiform cartilages (cartilages of Wrisberg), and the epiglottis. Their connections are by elastic ligaments and joints, so that they can be moved by their respective muscles; the object of the motion being to act on two elastic ligaments, the **vocal cords**.

**52. The Thyroid Cartilage** is composed of two quadrilateral halves or *alae*, joined together, in front at an acute angle, the most prominent part of which junction is called the **pomum Adami**.

To its outer surface are attached three muscles: the



sterno-thyroid, thyro-hyoid, and the inferior constrictor.

To its inner surface, which is covered with mucous membrane, are attached the apex of the epiglottis, the superior thyro-arytenoid ligaments (the so-called false vocal cords), the vocal cords (the inferior thyro-arytenoid ligaments), the thyro-epiglottic ligament, and the thyro-arytenoidei and thyro-epiglottidei muscles.

The upper border is irregularly curved and has attached to it the thyro-hyoid membrane.

The lower border is shorter and less curved than the upper, and has attached to it the crico-thyroid membrane and the crico-thyroid muscle.

To the posterior border of each ala are attached the oesopharyngeus and the palato-pharyngeus muscles. The upper and lower extremities are named the superior and the inferior cornu. The superior is the longer and affords attachment to the thyro-hyoid ligament; the inferior, articulates with the side of the cricoid cartilage. When the crico-thyroid muscles act, the motion at this articulation allows the relaxation and tightening of the vocal cords.

**53. The Cricoid Cartilage** resembles a ring; it is broad behind and narrow in front. It is much thicker and stronger than any of the cartilages of the larynx.

On its outer surface are attached the crico-arytenoideus muscle and the longitudinal fibers of the oesophagus. On this surface are seen the facets which articulate with the inferior cornu of each ala of the thyroid cartilage.

The lower border is straight and is connected with the first ring of the trachea.

On its upper border are two oval facets, slightly concave, for the articulation of the arytenoid cartilages, between which is a concavity for the attachment of the arytenoideus muscle. In front, its upper border presents a broad excavation to which the crico-thyroid membrane (in which is seen the crico-thyroid artery), is attached; behind adds the crico-arytenoidei lateralis muscles.

**54. The Arytenoid Cartilages** resemble a truncated pyramid, triangular in form. They articulate upon



the posterior portion of the upper border of the cricoid cartilage. They are about five or six lines in height and about three lines in diameter at their base, and each presents for examination three lateral surfaces (marked off by three borders), a base and an apex.

The anterior surface of each affords attachment to the superior thyro-arytenoid ligament (the so-called false vocal cord).

The posterior surface of each is triangular and concave, and gives attachment to the arytenoidens muscle.

The internal surface of each is covered with mucous membrane, and faces the corresponding surface of the opposite cartilage.

**55.** The base of each arytenoid cartilage presents a smooth concave depression for articulation with the cricoid cartilage. In the front of the base is a projection, called the anterior angle. This angle is long and pointed and affords attachment for the **vocal cord** of that side and for the thyro-arytenoidens muscle. At the outer and back part of the base is the external or posterior angle; this is short and rounded, and affords attachment for the crico-arytenoidens posticus and the crico-arytenoidens lateralis muscles.

The apex of each points backward and inward, and affords articulation for the cartilage of Santorini, a mere nodule.

**56. The Cornicula Laryngis**, or the cartilages of Santorini, are two small nodules of yellow elastic cartilage, which articulate with the apices of the arytenoid cartilages, and continue their direction inward and upward.

**57. The Cuneiform Cartilages**, frequently called the cartilages of Wrisberg, are two small rods of yellow elastic cartilage which are contained in the free border of the ary epiglottidean folds.

**58. The Epiglottis** resembles a pear-shaped leaf with its stalk directed downward. It is yellow fibro-elastic cartilage, and is situated in the middle line and projects over the larynx like a valve. Its ordinary position



is nearly  $45^{\circ}$  backward, still leaving the upper opening of the larynx free for respiration. It is connected at its pointed lower extremity, with the inner angle of the thyroid cartilage and with the base of the tongue and the hyoid bone. It has an apex, an anterior and posterior surface, and an upper and two lateral margins.

Its apex or lowest part is attached to the angle of the thyroid cartilage by the thyro-epiglottidean ligament.

Its upper margin, which is the widest part, is unattached, is arched and rounded, and is the first thing seen in the pharyngeal mirror, posterior to the base of the tongue, when a laryngoscopic examination is made.

Laterally, its borders are rather turned backward, and to them are attached two folds of mucous membrane, which pass to the arytenoid cartilages, called the ary-epiglottic folds.

The anterior surface is attached at its lower part to the hyoid bone, by the hyo-epiglottic ligament; and, higher up to the tongue, by the three glosso-epiglottidean folds. The upper free, unattached portion of the epiglottis curves forward over the base of the tongue, when raised to its highest position.

The posterior or laryngeal surface is smooth, covered with mucous membrane, is concavo-convex, and free, and looks toward the larynx.

**59. The Mucous Membrane of the Larynx** is continuous with that of the pharynx and mouth above, and of the trachea below. It is intimately adherent to the posterior part of the epiglottis and to the vocal cords; elsewhere, it is loosely connected to the subjacent structures by an abundance of areolar tissue, which admits of its being elevated into large folds. This is chiefly found about the upper opening of the larynx, and it deserves notice from the rapidity with which it becomes the seat of serious effusions in acute inflammation of the larynx, and thus produces symptoms of suffocation. In the remaining part of the interior of the larynx, the mucous membrane is moderately adherent to the subjacent tissues,



and at the superior thyro-arytenoid ligaments, it reduplicates upon itself and then lines the **sacculus laryngis**.

The healthy mucous membrane is of a pale rose color, except where it covers the cushion of the epiglottis, where it is bright pink.

**60.** The epithelium is columnar and ciliated below the superior thyro-arytenoid ligaments, and this variety is continued up the epiglottis as high as its middle; above this the epithelium is squamous.

**61.** The mucous membrane of the larynx is remarkable for its acute sensibility. This is requisite to guard the upper opening of the larynx during the passage of food over it.

The submucous tissue of the larynx is studded with mucous glands. They are of a simple tubular and also of a conglomerate character. An oblong mass of them lies in the ary-epiglottic folds, and they are particularly numerous in the sacculus laryngis in which locality some sixty separate glands exist. The surface of the epiglottis, toward the tongue, is abundantly provided with them; their ducts pass through the epiglottis, and may be recognized as minute openings on the laryngeal aspect.

**62. The Vocal Cords** are composed of yellow elastic tissue, and extend horizontally from the angle of the thyroid cartilage to the anterior angles of the base of the arytenoid cartilages. Their inner or free edges are thin and sharp, and look upward; their outer borders are continuous with the cricothyroid membrane, and are in contact with the arytenoidei muscles. They diverge as they pass backward, and are covered with a very thin and closely adherent mucous membrane, having columnar, ciliated epithelium.

**63. The Length of the Vocal Cords.** In the adult male the vocal cords measure about seven lines (seven-twelfths of an inch, or 1.5 c. m.); in the female, about five lines (five-twelfths of an inch, or 1.03 c. m.).

**64. The Ventricles of the Larynx.** These are spaces or recesses which exist between the superior thyro-



arytenoid ligament and the vocal cords; and each leads to a small conical pouch, but bottom-side uppermost, called the *sacculus laryngis*. It is seen that they are a prolongation of the ventricle of the larynx. Each ascends for about half an inch upward and outward as high as the upper border of the thyroid cartilage, which bounds it on its outer side. It contains from sixty to seventy muciparous glands, whose secretion serves to lubricate the vocal cords.

**65. The Blood-vessels.** The arteries of the larynx are derived from the inferior and superior thyroid. The veins are the inferior, middle and superior thyroid. The laryngeal branch of the superior thyroid artery passes through the thyro-hyoid membrane, with the nerve of the same name, and divides into branches, which supply the vessels and the mucous membrane. The laryngeal branches of the inferior thyroid ascend behind the cricoid cartilage. A constant little artery passes through the crico-thyroid membrane.

**66. The Nerves** comprise the superior laryngeal and the inferior (or recurrent) laryngeal nerves, both of which are derived from the pneumogastric nerve and filaments from the sympathetic.

The **Superior Laryngeal Nerve** after passing through a hole in the thyro-hyoid membrane, divides into several branches, and is distributed to the mucous membrane of the larynx. Its filaments spread out in various directions, some to the anterior and posterior surfaces of the epiglottis and to the ary-epiglottidean folds; others to the interior of the larynx and the vocal cords. A constant filament descends behind the ala of the thyroid cartilage, and communicates with the inferior laryngeal nerve, and another communication with the inferior laryngeal nerve is found behind the larynx, beneath the pharyngeal mucous membrane, an inch above the base of the tongue. An external branch supplies the crico-thyroid muscle, and Darring says, the arytenoid muscle also.

**67. The Inferior (or Recurrent) Laryngeal Nerve**



enters the larynx at its posterior portion, beneath the inferior constrictor muscle, passing upward behind the articulation of the inferior cornu of the thyroid cartilage and the external surface of the cricoid cartilage. It supplies all the muscles of phonation, except the crico-thyroid. If the recurrent laryngeal nerve be divided, or in any way injured, the muscles moving the glottis become paralyzed, but its sensibility remains unimpaired. When the nerve is compressed by a tumor, for instance, an aneurism of the arch of the aorta, the voice is changed to a whisper, or even lost.

**68. The Male and Female Larynx.** Until the approach of puberty, there is no great difference in the relative size of the male and the female larynx. Within two years after puberty, the larynx of the male becomes nearly double in size, while that of the female also grows, but to a less extent.

**69.** The larynx of the adult male is about one-third larger than that of the adult female.

The average length of the vocal cords is in the	{	Male.....	7 lines
		Female.....	5 lines
The average length of the glottis is in the	{	Male.....	11 lines
		Female.....	8 lines*

**70.** Several years ago I examined the larynx of a negro, known in this city as Charcoal Charley, who had a wonderful compass of voice, which he displayed in his mode of singing "charcoal" through the streets. The length of his glottis was fully an inch and a half, and the pearly white vocal bands fully one quarter of an inch wide. About the same time I examined a man's larynx, whose vocal cords were but a little over one half an inch in length. The man's height was nearly six feet. His voice was similar to that of an eight year old girl.

**71. THE TRACHEA** is a cartilagino-membranous tube, which extends from the cricoid cartilage of the larynx, or the fifth cervical vertebra,† to the third dorsal vertebra, where it bifurcates into the right and left bronchus, one for each lung. Its length is about four and a half inches,

\* Holden's Manual of Dissection of the Human Body.

† Holden says opposite the upper border of the sixth cervical vertebra.



and corresponds to the length of the pharynx and pharyngo-nasal cavity, and is one half of the length of the oesophagus. Its width is from eight to ten lines; but these measurements vary according to the age and sex of the person and the capacity of the lungs. It is round in form, partly a cartilaginous and partly a membranous tube, the cartilaginous portion being incomplete rings. These rings are usually twenty in number, and each forms two thirds of a circle. The incomplete portion which lies posteriorly is supplied by a fibre-muscular membrane. This deficiency allows the trachea to enlarge or diminish in caliber; and for this purpose the membranous part of the tube is provided with unstriped muscular fibers, to which the name *trachealis muscle* is applied.

The mucous membrane is light pink, nearly white in color, and is covered with columnar, ciliated epithelium. It is continuous with that of the larynx at its upper extremity and the ultimate air cells in the lungs, where it is thinner and more transparent. In its deeper layer is found a considerable amount of elastic tissue.

72. The vibratile movement of the cilium is directed in such a way as to favor the extrusion of foreign substances, such as dust, etc. The ciliated epithelium lining the mucous membrane ceases at the commencement of the air cells, where it is replaced by the squamous variety.

73. **Tracheal Glands.** These are found in great abundance in the posterior wall of the trachea. They are compound racemose glands, lined with columnar epithelium, and their excretory ducts pierce the fibrous and muscular layers, and terminate on the free surface of the mucous membrane. The secretion from these glands serves to moisten the inner surface of the trachea. In health, the secretion is clear, and just sufficient to moisten the passages, but in bronchitis, the glands are sources of abundant, viscid expectoration.

74. **The Arteries** of the trachea are derived from the inferior thyroid and bronchial arteries, and the **veins** terminate in the thyroid plexuses and the bronchial vein.



**75. The Nerves** are derived from the pneumogastric, the recurrent laryngeal and the sympathetic.

**76. The Trachea**, in the lower portion of the neck is very deeply situated, and is reached with difficulty except at its upper part, since, as in cases of extreme dyspnoea, the head is usually thrown forward. There are not more than seven or eight rings in the neck, and the isthmus of the thyroid gland covers the second, third and fourth rings. **The difficulty in tracheotomy** is increased by the swelling of the thyroid veins and the contraction of the sternal muscles, which increase the distance from the integument to the trachea.

**77.** In the normal attitude of the head, the distance between the lower border of the larynx and the upper border of the sternum is only one and a half inches in the child, and the position of the head will greatly modify this; for, when the head is fully extended, **three-quarters of an inch is added**; a very important fact.

**78. THE BRONCHIAL TUBES.** The right bronchus is wider and shorter than the left; it lies more horizontally and is about one inch long.

The left, as stated, is smaller but longer than the right, it being nearly two inches in length.

**79.** Within the substance of the lungs the bronchial tubes divide and sub-divide dichotomously until they reach a diameter of about one-fiftieth of an inch, when they penetrate the various lobules of the lungs, and, since they then pass between the air cells, they are called intercellular passages. These ramifications do not communicate with each other; hence, when a bronchial tube is obstructed, all supply of air is cut off from those cells to which it leads.

The smallest air passages are entirely membranous, being formed of fibrous, elastic and muscular tissue.

**80.** The bronchial **arteries** are derived from the thoracic aorta, and the bronchial **veins** empty into the vena azygos on the right side, and on the left, into the left superior intercostal vein. These vessels are for the nu-



trition of the lungs only and have nothing to do with the process of oxygenation. The **nerves** are derived from the anterior and posterior pulmonary plexuses, which are formed by filaments from the pneumogastric nerves and from the sympathetic.

**31. THE AIR CELLS OF THE LUNGS.** Each bronchial tube divides and sub-divides into smaller and smaller divergent tubes, until each has reached a reduced size of about 1 m. m.; it then enters a pulmonary lobule. Each lobule is, in its form and general appearance, a miniature lung, which is pyramidal in its outline, and whose base is directed outward, as shown in figure 2. The aver-



Figure 2. A Pulmonary Lobule. (Robin.)

age size of each lobule is about one-twelfth of an inch. It is divided into compartments, called air cells, whose diameters vary from one two-hundredth to one seventy-second of an inch. The air cells are separated from each other by thin septa, named alveoli.

Each air cell consists of the following component parts.



in their order from within outward, which enter into the construction of their walls:

1. Pavement epithelium.
2. A basement membrane.
3. Six plexuses.
 

{	Pulmonary arteries. Pulmonary veins. Bronchial arteries. Bronchial veins. Nervous plexus. Lymphatic vessels.
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4. Elastic tissue of the lungs.

**82.** These four layers may be compared, in order to assist memory, to the construction of the ordinary partitions between the rooms of a dwelling, where the paper represents the epithelial covering; the plaster, the basement membrane; the laths, the six plexuses; and the brick-work behind all, the elastic tissue of the lobule.\*

### CHAPTER III.

#### PRACTICAL ANATOMY OF THE EUSTACHIAN TUBE, MIDDLE EAR, MASTOID CELLS, EXTERNAL AND INTERNAL EAR.

**83. THE EUSTACHIAN TUBE.** This is a slit-shaped passage of communication, extending backward, outward and upward, between the upper portion of the pharyngo-nasal cavity and the anterior and upper portion of the tympanic cavity. It conveys a graduated amount of air to the tympanum. Its anterior orifice is situated on a line with and posterior to the inner extremity of the inferior turbinated process. In structure it is partly fibro-cartilaginous and partly osseous. The anterior or cartilaginous end is about one inch long, and the osseous end

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\* Darling and Ranney.



about one-half an inch in length. The narrowest part of the canal is at the middle, where its walls are in contact, except at its upper portion, where there is a permanent opening, capillary in size.

**84.** No part of the Eustachian tube is cartilaginous in its whole circumference. The tube is slit shaped, and its walls stand vertically. The upper part, and a small portion of the upper part of the outer wall of this peculiar canal, and its inner wall are formed of the cartilage portion above mentioned; and the outer wall—except the small part mentioned—is membranous. This is shown by a transverse section of the tube. As it extends backward, the tube becomes smaller, and as it approaches the bony portion, the canal is more circular. After entering the bone it expands gradually into the tympanic cavity.

**85. The Muscles** arise from the cartilaginous portion of the Eustachian tube, the **levator** and **tensor palati** muscles respectively. The levator palati arises from the under part of the cartilage, and runs nearly in a line with it; and the tensor palati arises from the whole length of the hooked, upper portion of the cartilage. This hooked portion is on the outer side. This muscle's action is directly across the axis of the tube, so that the actions of these two muscles, at this location, are almost directly across each other.

That portion of the tensor palati, between the cartilage of the tube and the hamular process, is called the dilator tubæ, as, during its contraction while the act of deglutition is taking place, it draws the hook-shaped portion of the cartilage downward, which tends to increase the lateral diameter of the Eustachian tube. It is this muscle that all anatomists, physiologists, otologists, etc. assert, opens the tube so as to allow air to freely enter or recede from the cavity of the tympanum, but which is not true, as will be shown further on.

**86.** The Eustachian tube is lined by a continuation of the mucous membrane of the pharyngo-nasal cavity,



and is covered throughout by ciliated epithelium, the ciliary motion being in the direction of the pharyngo-nasal cavity. The membrane which lines the cartilaginous portion is thick and vascular, and gradually becomes thinner as the middle ear is approached, and is thinnest in the osseous portion. The mucous glands that surround the orifice of the tube are similar to the glands beneath the mucous membrane of the pharyngo-nasal cavity and the soft palate.

Under the epithelium and basement membrane is a fibrous layer, which varies in its thickness and nature, in the upper and lower portions of the tube. In the gutter or slip-shaped portion of the tube, the fibrous layer diminishes, and the glandular tissue is markedly developed; the fibrous layer is distinct **where the glands are entirely wanting, as in the capillary air-tube portion.**

"The **mucous glands** are entirely **wanting** in the neighborhood of the safety tube [capillary air tube portion], through the **whole length** of the Eustachian tube. On the middle portion of the accessory fissure [slit-shaped or collapsed portion of the air tube] the acinous glands form a layer between the medial [inside] cartilaginous plate and the mucous membrane, and this becomes gradually thicker as you pass downward."\*

**87. The Mouth** of the Eustachian tube projects slightly into the pharyngo-nasal cavity; and lies a little above the level of the floor of the nasal chamber. As seen by reflection from the pharyngeal mirror, it is trumpet-shaped; but when seen in the cadaver this shape is not observed, unless looked at from below the soft palate. The size and shape of the mouth of the tube varies in different persons, the difference being as great as that of the nose or the ear. The late Dr. Hodgen exhibited to the St. Louis Medical Society a Eustachian tube having a nickel coin (five cents) embedded in the mouth. This shows that the mouth of the tube is fully half an inch in diameter.

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\* Rüdinger in Stricker.



**88. The Formation of the Eustachian Tube** will be fully described in Section II, Chapter VI.

**89. The Blood-vessels** of the Eustachian tube arise from the ascending pharyngeal artery which is a branch of the internal carotid and from the tympanic artery, which is a branch of the internal maxillary.

The vessels from the tympanum "run first as large arterial branches in the direction of the tube, along both floor and also the safety tube [capillary air tube portion], and on cross sections they are found to be confined to certain positions. Two vessels of variable size are seen in the projections of the mucous membrane which lie between the safety tube and the accessory fissure [collapsed portion]; one of them forms a capillary network on the lateral [outside, or hook-shaped portion], the other on the medial side [inside portion of the cartilage], and these networks *do not anastomose* with that of the third vessel, [the middle roof] of the safety tube. This vessel forms a distinct network in the sub-mucosa, and is *distributed only to a definite portion of the roof of the tube.*"\*

**90. The Nerves** of the Eustachian tube are derived from the middle ear and pharyngeal plexus. The middle ear nerve is called the tympanic branch of the glosso-pharyngeal or Jacobson's nerve, and arises from the petrous ganglion. After entering the middle ear, one of its branches is distributed to the Eustachian tube and tympanum.

**91. THE MIDDLE EAR.** This is an air chamber, situated in the substance of the petrous portion of the temporal bone. Its supply of air is received through the Eustachian tube. It is very irregular. Its **outer wall** is lined in part by the membrana tympani, but the cavity extends above it, as is shown in figure 3. Its **roof** is lined by a thin plate of bone, separating it from the body of the cranium. Its **inner wall** is vertical and uneven; it has two openings in the dry state, one into the vestibule, closed by the base of the stapes, and the other

\* Rüdinger in Stricker.



into the cochlea, closed by the membrane of the fenestra rotunda. On this wall is seen the promontory, formed by the first turn of the cochlea. On its surface is seen—in the dried state—grooves for the filaments of the tympanic branch of the glosso-pharyngeal nerve frequently called Jacobson's nerve. Immediately behind the stapes is a small conical eminence, the pyramid, in the summit of which is a small aperture, in the dried state, from which emerges the tendon of the stapedius muscle. At the base of the pyramid is

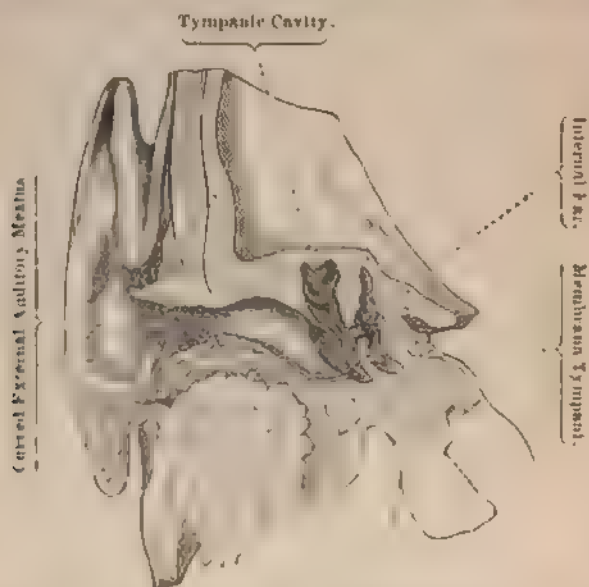


Figure 3. Section of the External Auditory Meatus; the Membrana Tympani; the Tympanic Cavity, etc. After Henle.

a small aperture which transmits a special filament from the facial nerve to the stapedius muscle. The **posterior wall** of the tympanic cavity, which is wider on the top than on the bottom, has from two to five openings, leading into the mastoid cells. The **floor** is narrow, and is immediately over the jugular fossa. Into the upper portion of the **anterior wall** of the cavity opens the internal extremity of the Eustachian tube. The anterior pyramid is found on this wall, and is above the opening of the Eustachian tube. This pyramid is a prominence of bone sur-



pulling the tensor tympani muscle. Upon the apex of the pyramid is an opening for the tendon of the muscle it contains, the tensor tympani.

The **chorda tympani**, a branch of the facial nerve, runs in an arched direction from the back to the front of the tympanum. It is covered by mucous membrane. The **aquæductus Fallopii**, is found in the upper portion of the inner wall: It is indicated by a horizontal ridge and passes backward and downward, and is the passage for the facial nerve.

**92. THE MEMBRANA TYMPANI** is a thin translucent membrane which completely closes the interior extremity of the external auditory meatus. It is inserted into a groove at the inner end of the meatus, except at the upper border. Its transverse diameter is 0.37 of an inch; its vertical 0.33 of an inch; and is 1-250 of an inch thick.\* It is placed very obliquely to the axis of the meatus; the upper border of the membrane being nearly in a line with the upper portion of the posterior wall of the auditory meatus, and the lower border forms an acute angle with the anterior wall. The lower border is more deeply situated than the upper border, showing that the membrana tympani is inclined laterally also. These facts will come again in review when discussing the air density of the middle ear. The **manubrium of the malleus** is inserted between the layers of the membrana tympani, and runs downward and forward to a little below the center.

**93.** The membrane is slightly convex, the convexity being directed toward the middle ear. The formation of the "light spot" or **umbo**, is due to the fact of the membrane being convex and in a stretched condition. Flint says: the point of greatest concavity is where the handle of the malleus is attached. This is incorrect. In another place he says the umbo is at the place of attachment of the malleus, which is also incorrect. The greatest concavity

\* Holden.



is above the umbo, and the umbo is below and a little anterior to the lower extremity of the manubrium.

The **location of the umbo** is invariably at that part of the membrana tympani that is at a **RIGHT ANGLE TO THE AXIS OF LIGHT** that enters the auditory meatus. It **CANNOT BE AT ANY OTHER PLACE**, as its location is governed by well known laws of physics.

**94. The Structure** of the membrana tympani consists, externally of an extremely thin layer of true skin; internally, of mucous membrane of the middle ear, and between these structures, there is fibrous tissue, most of whose fibers radiate from the attachment of the tip of the handle of the malleus in a curved direction; so that the membrane is not strictly a cone. Other fibers are annular, and are best seen at the periphery.

**95. THE OSSICULA AUDITUS** consist of three small bones, the **malleus**, the **incus** and the **stapes**. They are articulated to each other, by complete joints, and form a combination that somewhat resembles the letter Z.

**The malleus**, so-called from its resemblance to a mallet, is the only one of the bones of which any part of it can be seen from the external auditory canal. It is connected to the membrana tympani by a process called the **manubrium**, which is inserted between the mucous and fibrous coats of that membrane. It consists of a **head** which is suspended from the roof of the tympanum by the suspensory ligament, and articulates posteriorly with the incus. Its neck affords attachment to the laxator tympani muscle. The tensor tympani muscle is attached to a short blunt projection situated at the root of the manubrium, which is called the *processus brevis*.

**The incus**—anvil—resembles a bicuspid tooth more than it does an anvil, and is situated between the malleus and the stapes.

**The stapes**—stirrup—is the most internal bone; its base fits into the fenestra ovalis; its head articulates with the incus; and its neck affords attachment to the stapedius muscle.



96. There are three muscles connected with two of these small bones; the tensor tympani, the laxator tympani and the stapedius.

**The tensor tympani** runs in a bony canal parallel to and above the Eustachian tube, and is inserted into the root of the handle of the malleus. Its nerve comes from the otic ganglion. Its action is to draw the malleus farther inward.

**The laxator tympani.** It is denied by some authorities that this is a muscle. They say that it is only a ligamentous cord. It arises from the spinous process of the zygomatic bone, and the cartilaginous portion of the Eustachian tube, and is inserted into the neck of the malleus. Its nerve is a branch of the facial nerve. Its action, if it has any, is to relax the membrana tympani.

**The stapedius** muscle arises from the interior or hollow of the pyramid, which is situated just behind the fenestra ovalis. Its tendon emerges from the apex of the pyramid and is inserted into the neck of the stapes. Its nerve is derived from the facial nerve. Its action is to draw the stapes backward, and it is supposed to compress the fluid contents of the vestibule.

97. **The Mucous Membrane** of the tympanum is continuous with that of the pharyngo-nasal cavity through the Eustachian tube. It covers the whole of the cavity, the ossicles, pyramids, muscles, nerves, and is prolonged into the mastoid cells. The membrane is pale and thin and is lined with columnar, ciliated epithelium, except on the promontory, the membrana tympani, and the ossicles, where there is only a layer of flattened cells. The mucous membrane is supplied, as respects nerves, with branches from the tympanic plexus, which is formed by filaments from the tympanic branch of the glosso-pharyngeal nerve, from the carotid sympathetic plexus, and from the large and small superficial petrosal nerves.

**The arteries** of the middle ear are: (a) the tympanic branch of the internal maxillary, which enters through the fissura Glaserii; (b) the stylo-mastoid branch of the



posterior auricular (these arteries, *a* and *b*, form a circle around the membrana tympani); (*c*) petrosal branch of the middle meningeal; (*d*) tympanic branch of the internal carotid, and; (*e*) branches from the ascending pharyngeal which enter the cavity with the Eustachian tube.

**98. THE MASTOID CELLS** are situated posterior to the middle ear, and communicate with it by two or more orifices, and like the other sinuses of the cranium, are not developed until after puberty. Hence the prominence of the mastoid process in the adult. The cells are lined by a prolongation of the mucous membrane of the middle ear.

The openings of these cells into the middle ear are in the upper part of the posterior wall of the tympanum. There is usually one large irregular aperture, and several smaller ones. They lead into canals which communicate with large irregular cavities or cells contained in the interior of the mastoid process. These cells vary considerably in form, size, and number, and are lined with ciliated, columnar epithelium, continuous with the upper portion of the middle ear.

The arteries and nerves are the same as in the posterior portion of the tympanum.

**99. THE EXTERNAL EAR.** The parts discussed under this head consist of the pinna or auricle, the auditory canal or meatus, and the mastoid process.

The pinna is composed of cartilage, covered with integument, and is attached by ligaments to the root of the zygoma and mastoid process. The **tragus** is a conical projection on the anterior edge of the opening of the auditory canal, and is usually covered with a few hairs.

The **external auditory meatus** is that portion of the external ear which forms the passage from the concha to the middle ear, from which it is separated by the membrane of the tympanum. It varies in length from an inch and one-eighth to an inch and three-eighths, and runs inward, forward and a little upward. Its course is not straight; if, however, the pinna be drawn slightly upward



and backward, the canal will be rendered more nearly straight. Its floor is longer than its roof, on account of the obliquity of the membrana tympani. Its anterior third is formed by cartilage, being a continuation of the auricle and tragus; and the remaining two-thirds, by bone. Its roof is almost entirely of bone, for it begins directly under the zygoma. The beginning of the meatus is oval, the greatest diameter being nearly vertical—leaning a little backward—at the internal extremity, it is nearly circular. Its skin is continuous with the pinna and covers the membrana tympani. There are sebaceous glands in the pinna and meatus; but those characteristic of the latter are the ceruminous glands, situated in the cartilaginous portion of the meatus. In structure they are like sebaceous glands, as respects their external form and minute histology. When the cerumen has collected in considerable quantity and remained some time in the meatus, it becomes altered in color and consistency, from loss of its watery elements.

**The mastoid process** is situated immediately behind the auricle. It is covered by a very dense skin of more than average thickness.

The arteries are derived from the posterior auricular, the internal maxillary, and the temporal. The nerves come from the auriculo-temporal branch of the inferior maxillary nerve.

**100. THE INTERNAL EAR** consists of a series of canals channelled out of the most compact part of the temporal bone, and is called, because of its complexity, the **labyrinth**. It is lined throughout its whole extent, by a thin fibro-serous membrane, the function of which is to secrete a fluid called the liquor Cotunnii, or the **perilymph**, in which fluid floats a membranous sac, that conforms to the shape of the osseous labyrinth, and is hence called the **membranous labyrinth**. The membranous labyrinth is itself, filled with a fluid called the **endolymph**.

The labyrinth is divided into three parts; one is called the **vestibule**. This is the middle one, and the one



with which all the others communicate; another, an anterior, the **cochlea**, so-called because it resembles a snail's shell; and a third, the posterior, consisting of **three semicircular canals**. The vestibule communicates with the tympanum by means of the fenestra ovalis; and the cochlea, by the fenestra rotunda.

## CHAPTER IV.

### THE ANATOMY OF THE SYMPATHETIC NERVES INVOLVED IN CATARRHAL DISEASES OF THE NOSE, THROAT AND EARS.

The study of the anatomy of these nerves will assist in emphasizing my assertion that these three organs should be considered as belonging to one specialty; in other words, the sympathetic nerves unify the diseases that affect the nose, throat and ears. Besides innervating the mucous membrane, these nerves are also distributed to the integumentary surface of the body—the gate-way of ninety-seven per cent. of all catarrhal diseases—bringing these two surfaces into the most intimate relations with each other. It is the relationship that the outside surface bears to the inside surface, and the relationship that the inside surface bears to the brain, the lungs, the heart, the stomach, etc., that requires a review of the anatomy of the sympathetic system of all the organs mentioned.

The sympathetic system of nerves consists of ganglia, communicating and distributing branches, and plexuses. The ganglia are arranged on each side of the central line of the body, the vertebrae, except the ganglion of Ribes, within the cranium, and the ganglion impar on the coccyx. The ganglia, with their communicating branches, form a knotted line on each side of the vertebral column. In their



passage down the column, the ganglia connect with all the spinal nerves from the carotid foramen to the coccyx. As the sympathetic enters the cranium, it surrounds the internal carotid artery, communicates with the third, fourth, fifth and sixth cranial nerves, and with its fellow of the opposite side of the body through the **ganglion of Ribes**, which latter is situated on the anterior communicating artery. The **ganglion impar** forms the communication between the lower extremities of this double column. The portion of this nervous system located over the coccyx is known as the coccygeal, that in the sacral, lumbar and thoracic regions takes these names, while the three ganglia on each side of the cervical vertebrae, also take the name of the region of location, namely the cervical. This is the region that will occupy the most of our attention.

**101. THE CERVICAL SYMPATHETIC** consist of three ganglia, the superior, middle and inferior.

The **Superior Cervical**, is the largest of the three ganglia: it is long, varying from one to two inches, and is fusiform, extending from near the carotid foramen to opposite the bifurcation of the common carotid artery. This places the ganglion opposite the second and third cervical vertebrae. It lies upon the rectus capitis anticus major, behind and on the inner side of the internal carotid artery. Its color, as well as that of all of the sympathetic ganglia is a peculiar reddish-gray mixed with a pearly luster.

The branches of these ganglia may, for the convenience of arrangement and description, be reduced to four, namely: superior, inferior, external and internal. The *superior* branches communicate with the ganglion above; the *inferior*, with the ganglion below; the *external*, with the spinal nerves at their exit from the intervertebral foramina. The *internal* branches are distributed to the nasal and pharyngo-nasal cavities, the pharynx, larynx, and the heart.

**102. The Branches** of the superior cervical ganglion are the superior, inferior, external, internal, and to this ganglion is found an anterior branch.



The superior branch runs with the carotid artery into the carotid canal of the temporal bone, and there divides into two branches, which form frequent communications with each other. The *outer* of these two branches, the larger, accompanies the artery through its bony canal, ramifies upon it by the side of the sphenoid bone, and in this way forms the **carotid plexus**. A filament proceeds from this branch to the Gasserian ganglion; another to the abducens or sixth nerve (which goes to the external rectus muscle of the eye); and another joins the great petrosal branch of the facial, and forms the Vidian\* nerve, thus communicating with the sphenopalatine ganglion. It also communicates with the tympanic branch of the glossopharyngeal, in the carotid canal.

The *inner* of these two branches, running on the carotid artery to the cavernous sinus, forms the **cavernous plexus**. Here it communicates with the motor oculi, the third nerve,† the fourth nerve, trochlearis, (which is distributed to the superior oblique muscle of the eye), and the ophthalmic branch of the fifth, and with the sixth, and also with the ophthalmic ganglion. From both the *carotid* and the *cavernous plexuses*, secondary plexuses arise, of which the minute filaments ramify on, and supply the coats of, the terminal branches of the internal carotid artery.

The inferior branch, often double, communicates with the middle cervical ganglion.

The external branches are numerous and connect with the ganglion of the pneumogastric, with the hypoglossal, and with the first, second, third and fourth cervical spinal nerves. A communication is also made with the petrosal

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\* This nerve is distributed to all the muscles of the eyeball excepting the superior oblique and the external rectus. A paralysis of it causes falling of the upper eyelid (ptosis), divergent strabismus, dilatation and immobility of the pupil.

† First described by Vidus Vidius, Professor of Anatomy in the College of France, in 1542, and in Pisa, in 1547. He was the predecessor of Sylvius (James Dubou, but his name was Latinized to Sylvius), in the College of France.



ganglion of the glosso-pharyngeal and the upper ganglion of the pneumogastric. Wilson adds the spinal accessory.

The internal branches are: (*a*) *pharyngeal*, filaments communicating with the pharyngeal plexus upon the middle constrictor muscle of the pharynx; (*b*) *laryngeal*, filaments communicating with the superior laryngeal nerve; and (*c*) *superior cardiac*, a long branch, sometimes more than one, which descends behind the sheath of the carotid artery in front of the inferior thyroid artery and recurrent laryngeal nerve, and, entering the chest, joins the superficial and deep cardiac plexuses.

The anterior branches are small soft filaments, and named, on account of their delicacy, the *nerri molles*. They lie in front of the external carotid artery and ramify around this vessel and its branches, forming the various plexuses. In some of the plexuses are occasionally seen several ganglia, the intercarotid—situated at the bifurcation of the common carotid—the temporal, the lingual, and the pharyngeal. These ganglia are connected with the ophthalmic, sphenopalatine, otic and submaxillary.

**103. The Middle Cervical Ganglion.** This is the smallest of the three ganglia, its size being about equal to that of a grain of barley. It is situated upon the inferior thyroid artery—hence, thyroid ganglion—behind the carotid sheath, opposite the fifth or sixth cervical vertebra, sometimes, it is situated behind the thyroid artery.

Its **branches** are, the *superior*, communicating with the first cervical ganglion; the *inferior*, communicating with the third cervical ganglion; the *external*, communicating with the fifth and sixth cervical spinal nerves, and the *internal*, distributed to the thyroid body and the heart. In cases where the cervical ganglion is absent, the nerves mentioned above, are supplied by the sympathetic cord connecting the superior and inferior ganglia.

**104. The Inferior Cervical Ganglion**, semilunar in form, is of considerable size. It is situated immediately behind the vertebral artery, supported by the trans-



verse process of the seventh cervical vertebra, and to the inner side of the superior intercostal artery. Not infrequently it is coalesced with the first dorsal sympathetic ganglion.

Its branches are: the *superior*, which passes upward and connects with the middle cervical ganglion; the *inferior*, which communicates with the first dorsal ganglion, and several branches, which are connected with the recurrent laryngeal, and a branch to the heart, and the *external*, which communicates with the seventh and eighth cervical spinal nerves, and one or two small filaments which form a plexus around the vertebral artery, and which join with the fourth, fifth and sixth cervical spinal nerves.



## SECTION II.

### Practical Physiology of the Nose, Throat and Ears.

A knowledge of the normal functions of the various parts of the Nose, Throat and Ears is necessary to a rational treatment of the diseases that affect them. Only a small portion of the physiological action of the various parts of these organs will be given, as seems to me to be requisite to the successful management of the complaints under consideration.

While preparing this Section the works of well-known physiologists have been freely consulted, some of whose investigations I have been enabled to corroborate by my own observations. Chief among these are Flint, Dalton, Foster, Landois, Stirling, etc. Others, not named here, are alluded to, as quotations from them are made.

I have given my own observations on this subject at great length, and without any attempt to be brief. Having spent many years in making observations on these subjects, and believing that I am correct, I deem those observations to be of sufficient importance to be entitled to space for their full and elaborate statement. Another reason which may be considered is, that I am forced to controvert some of the theories promulgated by many illustrious investigators: theories which I will undertake to show are erroneous; and this will require much space.



## CHAPTER V.

PRACTICAL PHYSIOLOGY OF THE NOSE, THE NASAL CHAMBERS, AND THE CAVITIES CONNECTED WITH THEM; OF THE PHARYNGO-NASAL CAVITY, THE SOFT PALATE, THE UVULA, THE AZYGOS PROMINENCE, THE PHARYNX, THE TONSILS AND THE LARYNX.

**105. THE NOSE.** It is evident that the integument covering the nose is in very close relationship, by nerves with the mucous membrane of the superior portion of the respiratory tract. If a sick child be asleep, and be touched upon its hand, foot, stomach, head or chest, and it should not make any demonstration of uneasiness, it may be taken as evidence that the part touched is not in a diseased condition, or not directly connected by nerves with a diseased locality. But if, on touching its abdomen, or its chest, or its head, it immediately wakes up and gives signs of distress, the physician would be justified in concluding that the part touched was either diseased, or in immediate nervous connection with an inflamed organ; although the surface of the part touched might give no ocular evidence of disease. So it is with the nose. If upon approaching a sleeping, sick, child, and slightly touching it upon the nose, it at once arouses, and throws its hands up as if in defence, it may be set down as certain, that its nasal cavities are seriously affected.

Another evidence of the close relationship, by nerves, between the integument of the nose and the mucous mem-



trace within its chambers, is the relief that follows the application of vaseline to the bridge of the nose, when there is an impediment in the respiration due to a fresh attack of cold in the head. Not only is the nasal respiration relieved, but the patient can more completely fill his lungs, after the inunction.

Again, a small boil on the nose, not larger than a large pin's head, will produce constitutional disturbance, such as a tendency to stretch one's arms, accompanied by a general soreness, or "aching of the bones," as it is frequently termed, and perhaps a chilly sensation in the back. To prove that the constitutional symptoms just described are not the cause of the small boil, nor that the boil was a local manifestation of the general perturbation, is the speedy relief that follows a proper local treatment.

Ranney, in quoting Marshall says: "Marked elevation of the nostrils is regarded by some authorities as an indication of pain within the cavity of the thorax."

There are a large number of sebaceous glands on the nose, whose function is to secrete a substance that will lubricate the integument, and thereby ward off the effects of a cold and damp atmosphere.

**106.** The movements of the **nares** are observable when a person is making rapid respirations, as from excessive exercise. It is then seen that the dilation of the **nostrils** is the first effect of inspiration. It precedes by a distinct interval the expansion of the chest,\* thus showing plainly that the same nerves that control the lungs control also the alae of the nostrils. This is beautifully seen in the horse, after rapid and prolonged movement.

**107. THE NASAL CHAMBERS** are situated at the commencement of the respiratory tract. They are lined by mucous membrane, and designed by their structure to secure: (a) the warming of the air that passes through them into the lungs; (b) to moisten it sufficiently to prevent the drying of the organs between it and the air cells of

\* Bourdon-Sanderson.



the lungs; (c) to arrest irritating substances that float in the inspired air; (d) to detect odors; and (e) to act as a resonance cavity for the voice.

**108. (a).** The **inspired air**, as it passes through the nasal cavities, impinges upon the **warmed surfaces** of the turbinated processes and the septum nasi, and, before it reaches the fauces, has its temperature raised to about 98° F. This I have tested by placing a thermometer in my own throat and in that of patients and friends.

There is no doubt in my own mind that the air is also warmed to some extent by the sinuses and cells connected with the nasal chambers. I proved this in six cases of abscess of the antrum of Highmore, where one of the molar teeth in each patient had been extracted, before he came to me, to allow the physician to treat the cavity. I placed a small, close-fitting, curved tube in the opening made by the tooth and connected it with a glass tube, the other end of which was dipped into water. It was seen, in every instance, that with the respiratory movement of the lungs, the water passed quite a distance up the tube, fully half an inch in quiet respiration; and at every expiration, the water, as well as the air, was blown out of the tube. In three cases where the ethmoidal cells of the left side were open, the same phenomena were observed.

**109. (b).** **Moisture of the Air** is also necessary to normal respiration, and moisture of the mucous membrane is essential to the performance of its functions. The sense of smell will be obtunded if the normal quantity of moisture is not present; on the other hand, if there is a greater quantity of mucus than is required for normal action, or if it is even but slightly thicker than normal, this also will lessen the acuteness of this sense. Thus it is that in persons whose catarrhal secretion is profuse, their inability to distinguish odors may not be due to a paralysis of the olfactory nerves, but to the fact that these nerves are covered by a too profuse or a too thick mucus.

The dust that passes the vibrissæ at the nostrils would not be precipitated on the nasal surfaces, if it were not



weighted down by the moisture; and the vibratory motion of the cilia of the columnar epithelium on the lower portion of the mucous membrane of the chamber would not be maintained, if the moisture were not also maintained in due quantity.

110. (c). The vibrissæ at the nostrils materially assist in **arresting dust, insects, etc.**; but their usefulness is very greatly enhanced by the moisture of the air, as it carries out of the nasal cavities from the lungs, making possible for these floating substances to adhere.

111. (d). If an **odorous body** is brought near healthy nostrils, minute particles of the substance will float into the nasal cavities with the inspired air, and its identity may be determined by the olfactory nerves. Under natural conditions, these nerves are able to detect some substances far more certainly than the finest chemical tests.

As stated in topic 109, the surfaces in the olfactory regions must not be too dry or too moist. Another condition of olfaction is the admixture of air with the substance to be smelled. If cologne be mixed with water that is being forced through the nose by a Weber nasal douche, no odor will be recognized; or if the cologne is placed on the olfactory membrane with a brush, its odor will not be recognized, *except* in the air as it leaves the lungs, during expiration, or is volatilized in the nasal cavities.

This fact can be utilized for the purpose of locating the place of lodgment of the fetid secretion in patients suffering from ozæna. If the patient is able to recognize odorous substances in the usual way, and does not recognize the odor of his own breath, the fact proves that the secretion is lodged in the nasal cavities only; but if, when he makes special effort, he does recognize his own breath as disagreeable, the fact indicates that the secretion originates and proceeds from one of the ethmoidal cells, which are more liable to be affected than the other cavities; or from one of the sinuses or antra.

112. (e). It is not difficult to demonstrate that the



nasal cavities act as **resonators of the voice**; for one has only to close the nostrils with the thumb and finger, and pronounce a few words that have the "m" "n" or "ing" sounds in them, to feel the effects of the vibrating vocal cords in the cavities. If the nasal mucous membrane is swollen sufficiently to amount to even a slight respiratory impediment, the tone of the voice will at once be changed.

**113. THE PHARYNGO-NASAL CAVITY** is a continuation of the air passage from the posterior nares to the pharynx. Its walls have a warming and moistening effect on the air as it passes to the lungs and the Eustachian tubes. This cavity allows the soft palate space into which to be pushed upward and backward by the bolus of food and the base of the tongue in the act of deglutition. If this cavity is filled or partially filled with a tumor, its effect on the voice will be still more marked than the partial closure of the nasal cavities, showing plainly its function as a resonance cavity.

**114. THE SOFT PALATE** is one of the organs of deglutition, and it is also a vocal valve. As an organ of deglutition, its functions, while not very simple, are far from being complex; but as a vocal valve, its actions are indeed quite complex, for the reason that it is not a single organ but a complex one, consisting of three organs, namely: the *velum proper*, the *azygos prominence*, and the *uvula*. Each of these three organs has a function to perform that is peculiar to itself, but as they always act in connection with each other, a description of their functions will be given collectively.

The formation of the soft palate (32), the uvula (39), and the azygos prominence (41) has been given.

In order to make my views concerning the actions of these three organs more clearly understood, I will now give quotations from some of the best authorities concerning the function of the uvula. As to the function of the azygos prominence, they have nothing to say, for the reason that they make no mention of its existence.



### 115. Function of the Uvula according to the best authorities:

**Horace Green** (1852), says: "The use of the uvula and velum, as supposed, is, by operating as a valve, to prevent the food, in the act of deglutition, from ascending into the posterior nares."

**Dunglison's Medical Dictionary.** (1861). "Its use is not clear."

**Dr. Jas. Yearsley** (1867), says: "The uvula must be considered as little more than a prolongation of the mucous membrane which lines the whole of the throat, mouth, nose, etc. \* \* \* \* \*  
 Between the palatine arches thus act [in deglutition], the uvula lies passively between them, and contributes, in some degree, to complete the closure between the nares and pharynx. It cannot, however, be of great importance in this particular, as this appendage is found to be present in man and the quadrumanus. \* \* \*

In singing the uvula and palate are raised during the production of the higher notes. \* \* \* That the uvula is of no great importance in the production of the voice or speech, is proved by the fact, that many cases are recorded in which it has been destroyed by disease, and even there had been congenital deficiency; in none of these cases, even the soft palate had been left intact, had anything abnormal been observed in the voice. Neither does the loss of the uvula, as far as my experience goes, interfere in the least with deglutition; the contraction of the palatine arches, and guidance of the food into the pharynx, take place with as much precision as before."

In August 1871, **Sir Duncan Gibb** read a paper before the British Medical Association on "The Uses of the Uvula" in which he says: "It is an essential to the fauces, especially in the act of deglutition, for when any substance comes in contact with it, it excites the action of all the neighboring muscles until it has got rid of the bolus. But it exercises a function of not less importance in holding the soft palate steady and firm in the median line against the wall of the pharynx during the act of deglutition itself, and thus prevents the passage upward of fluid or solid substances behind the nose. \* \* \* Speech is articulated by the soft palate and uvula, and the motor power of the latter is unquestionably exerted in pronouncing the letters K, L, & G, with their associations, more especially the gutturals of the vowels *kaag, laag, gaag.*"

The *Medical and Surgical Reporter* for Oct. 3, 1874, has the following:

"**Dr. H. Dobell**, in the *British Medical Journal* says: 'Looking to-day, into the pharynx of a patient suffering from a severe na-



sal catarrh, I saw the watery secretions from the back of the nose pouring down in a continuous stream from the tip of the uvula on to the dorsum of the tongue. It was evident that they were collected to this point from all the surrounding parts, and that the uvula acts as a conduit to bring them to the front of the epiglottis, whence they might be safely carried down the throat by repeated acts of deglutition; whereas, were it not for the uvula, they would be liable to drop behind the epiglottis and thus cause discomfort by getting into the larynx. This very simple but important function of the uvula has not, as far as I am aware, been noticed before, notwithstanding all that has been written about this odd little organ.' "

**Lenox Browne**, makes no mention of its function in his work on "The Throat" (1878). In his most excellent work on "Voice, Song and Speech" (1881), he makes mention on page 214, of its contraction and elongation during the production of three different tones, *F, A, C*. In another place he says: page 81, "The closure [of the passage to the pharyngo-nasal cavity] is aided by a sort of cushion being formed upon the back of the uvula by the contraction of the muscles which elevate that body [the soft palate]. If the mouth is to be shut off from the throat, the soft palate is *lowered*, and rests closely upon the back of the tongue."

**Mackenzie** (1880), says nothing concerning its function.

**Flint's Physiology**. (1881). "In the changes which the pharynx thus undergoes in the production of different notes, the uvula acts with the velum and assists in the closure of the different openings."

How it does so, he does not state.

**Foster** (1881), in his physiology, does not give any function to the uvula.

**Dalton**, in his physiology, does not mention its function.

**Garretson** (1884), in his System of Oral Surgery, says: "The office of this body [the uvula] is to act as an agent excitiv[e] of the act of deglutition[?]." \* \* \* "As one of the offices of the uvula is to convey the mucus and saliva about the base of the tongue and epiglottis, acting thus as an agent of lubrication to these parts [?], it is objected that ablation of the organ results in a dryness of the parts more irritating than the offence removed."

**Holden** (1885), says on page 252, that the elongation "causes considerable irritation, a tickle in the throat, and a harassing cough."



When you have to remove a portion of it, cut off only the redundant mucous membrane."

He says nothing concerning its function.

It is seen that there is no unanimity of opinion concerning the function of "this odd little organ."

**116. The Functions of the Soft Palate, Azygos Prominence and the Uvula.** In the spring of 1870, I had a patient whose right nostril was large enough to admit the whole length of my little finger. The idea occurred to me that this was an excellent opportunity for examining the function of the uvula.

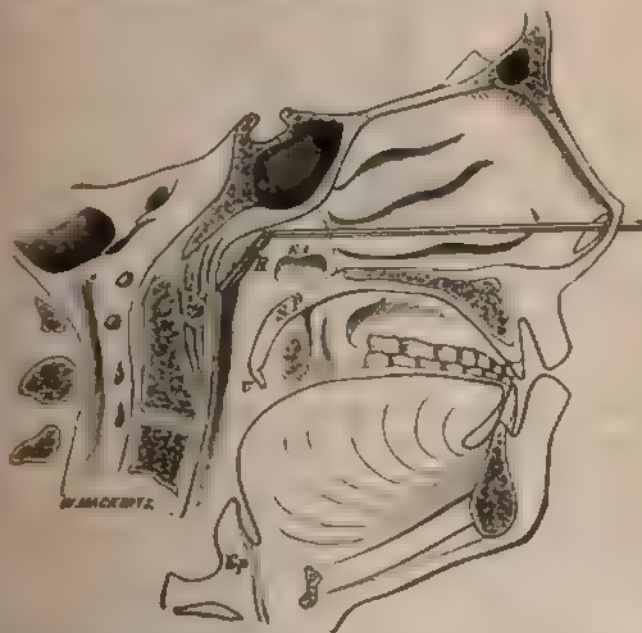


Figure 4. An antero-posterior section of the head; *R*, Reflector; *S. P.* Soft palate; *U.* Uvula; *E. t.* Mouth of the Eustachian tube; *E.* Epiglottis.

I had the patient keep his nostril wide open with a Kramer bi valve ear speculum. Through this large nasal passage, thus widely dilated, I easily passed my hinged pharyngeal reflector back to the posterior wall of the pharyngo nasal cavity, as seen in figure 4. On the reflector



I directed a very bright light, illuminating the parts under observation so brilliantly that the image was reflected back to my eye very distinctly. In this way I was enabled to inspect the upper or posterior surface of the soft palate, and the ridge on it that the elevators palati and uvulae muscles form, as shown in figure 5, *Az-Pr.* and de



Figure 5. View of the posterior nasal passages, the posterior surface of the soft palate, and base of the tongue. *Pt. N.* Posterior nares; *Et. l.* Eustachian tubes; *Az. Pr.* Azygos prominence, on the upper surface of the soft palate, formed by the elevator palati and elevator uvulae muscles; *S. l.* Semi-lunar openings formed by the tongue, uvula and soft palate; *T.* Base of tongue; *Ep.* Epiglottis; *U.* Uvula.

scribed in 39; the base of the tongue, *T*; the epiglottis, *Ep*; and the contents of the larynx, when the patient made an "aye" sound with his mouth closed.

My observations on this patient were continued from three to five and eight times daily for a period of five weeks. Subsequently, I made numerous observations of a similar character on many other patients, some of whom had lost the septum nasi but had perfect soft palates.

**117. During Mastication,** the whole free border of the soft palate rested on the base of the tongue, reaching within a short distance of the epiglottis, the tongue slipping up and down continually. In five cases the uvula was not in sight at any time, and seemed to be doubled



under the soft palate, so as to lie between it and the tongue, as shown in figure 6. Two patients had elongated uvulas, which sometimes hung down on the base of the tongue and frequently touched the epiglottis, without their knowing it, and, of course, without causing any uneasiness.

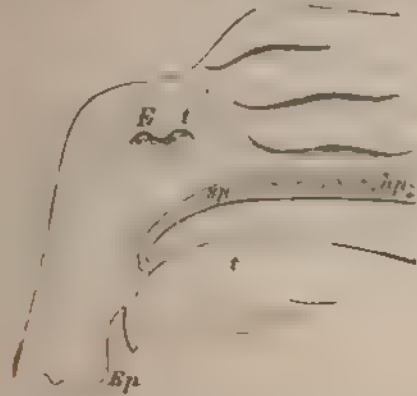


Figure 6. Antero-posterior section of the hard palate (*hp.*) and soft palate (*sp.*) showing the position of the uvula resting on the base of the tongue (*t.*); *Ep.* Epiglottis; *E. t.* Mouth of the left Eustachian tube.

**118. During the act of Deglutition,** the soft palate was pushed backward by the bolus of food, until the posterior wall of the pharynx was reached, and the motion was continued in an upward direction until the upper surface of the soft palate was high enough to **close and cover both Eustachian tubes** (see figure 4, *S. P.*, etc.), and to push the reflector (*R*) upward and forward. Immediately succeeding the closing and covering of the Eustachian tubes, **the larynx was raised up to the bolus,** and the soft palate and the larynx went down together. At the completion of the act of swallowing the food, the soft palate rested on the base of the tongue. It was at this part of the act of swallowing that the uvula was seen touching the epiglottis.

I have seen this repeated several hundred times, and whether with food or water, the motions were invariably



repeated in the same way. It is thus seen that neither the uvula nor the azygos prominence performed any function during the acts of mastication or deglutition.

**119. During the Vocalization** of sounds that passed through the **nose alone**, the whole free border of the soft palate rested and slipped up and down on the base of the tongue, as diagrammed in figure 6, but the uvula was not in sight at any time.

**120. During the vocalization** of sounds that passed through the **mouth alone**, as in phonation of "aye," made continuously and without effort, the soft palate was raised, and a small portion of its lower border was pressed against the posterior wall of the pharynx, as diagrammed in figure 7.

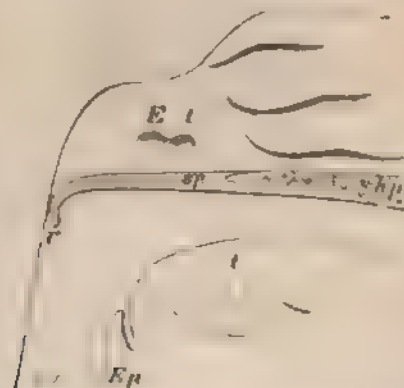


Figure 7. Antero-posterior section of the hard palate (*hp.*) and the soft palate (*sp.*) showing the position of the velum closing the avenue to the pharyngo-nasal cavity. *U*, Uvula; *t*, Tongue; *Ep*, Epiglottis.

Neither of these positions showed the action on the uvula or the azygos prominence.

**121. During the vocalization** of sounds that passed **through the mouth and nose** at the same time, the soft palate was either so suspended that but a small part of its central portion and the uvula rested on the base of the tongue, as shown in figure 8, or it was so raised upward and backward, that the azygos prominence touched the posterior wall of the pharynx, as shown in figure 9. In



both of these positions, the passage between the fauces and the mouth, and that between the fauces and the pharyngo-nasal cavity was divided into two equal, or nearly equal, semi-lunar openings.

122. In the first position named, the **division was made** by the uvula and a small part of the central portion of the velum resting on the base of the tongue, as shown



Figure 8. View of the anterior surface of the soft palate, the uvula and the base of the tongue, showing the lower semi-lunar shaped opening (*S.L.*) formed by the uvula (*U*) and a part of the central portion of the velum resting on the base of the tongue (*B. T.*).

in figure 8, *S.L.*; and in the second position, the partition was made by the azygos prominence, as shown in figure 9 *S.L.*, touching the posterior wall of the pharynx. In one patient I noticed, several times, that the uvula seemed to be resting on the base of the tongue, while, at the same time, the azygos prominence was touching the posterior wall of the pharynx.

When I began to make observations in these cases, I directed my attention to the uvula alone; but the **varying height** of the azygos prominence during vocalization of various sounds, drew my attention to it, and what I discovered was confirmed in subsequent examinations, namely: that this prominence, which I had known to exist for some time, was of equal, if not of more importance in vocalization than the uvula itself; so that, while endeavoring to ascertain the functions of the uvula, I discovered a **new organ**, and ascertained its function at the same time.

123. It was repeatedly observed that the free border of the soft palate, under no circumstance, hung unsupported in the current of air that came from the larynx, during vocalization; it was always in such positions as to receive



support from the uvula or azygos prominence or both, which support prevented it from being thrown into vibration by the air that came from the lungs.

It is well known that a substance which is easily thrown into vibrations, will vibrate if in the neighborhood of a vibrating body, and especially if the air that causes the vibrations also strikes the substance first mentioned.

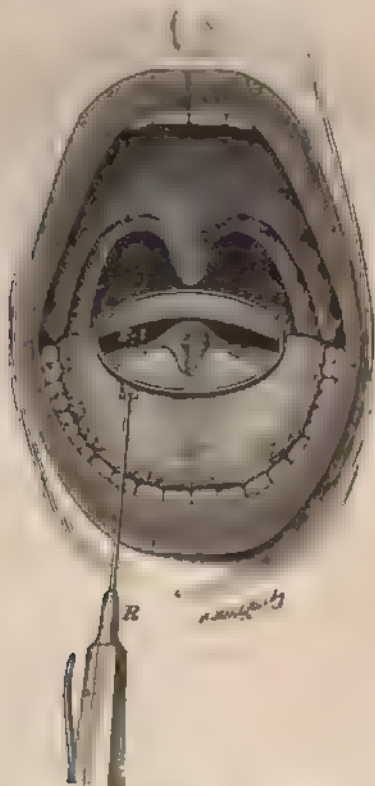


Figure 9. The image, seen on the hinged reflector (*R*), of the lower edge of the soft palate and the lower or posterior concave surface of the uvula (*U*), showing, also, the higher semi-lunar shaped openings (*S-I*) made by the azygos prominence touching the posterior wall of the pharynx.

Now, if we apply this to the vocal cords and the free edge of the soft palate, we will see that the conditions of the interrupted stream, of air, as it leaves the vibrating cords, is exactly such as to cause the free edge of the soft palate



to vibrate, and in this way to interfere with the evenness of the tone of the voice.

I will mention again the principal positions that this vocal valve, the soft palate, assumes during vocalization: (a) It is either elevated and pressed against the posterior wall of the pharynx, as shown in figure 7, during the phonation of sounds that pass through the mouth alone; (b) it is removed a short distance from the pharyngeal surface but not so far as to prevent the azygos prominence from touching the wall, as shown in figure 9, seen in the image of the reflector *R*, for sounds that pass mostly through the mouth and a little through the pharyngo-nasal cavity; (c) it is lowered to allow the uvula and a small part of the anterior portion of the soft palate to rest on the base of the epiglottis, as shown in figure 7, for sounds that pass mostly through the nose and a little through the mouth; or (d) it is lowered, so that the whole free border rests on the base of the tongue, as shown in figure 5, for the formation of sounds that pass through the nose alone. In a few instances, as has been mentioned, I have seen the uvula resting on the base of the tongue, and the azygos prominence touching the posterior wall of the pharynx at the same time.

124. The peculiar formation of the inferior or posterior surface of the uvula, seen in figure 8, *U'*, as well as the peculiar position it assumes as it hangs from the velum, that its lower extremity pointing outward, indicates that the lower portion lies on the base of the tongue almost all the time. It is evident that this is the best position in which it could be placed to prevent the free edge of the soft palate from being shaken by the force of the air from the larynx. If it should vibrate, it would produce variations of the voice. I have observed these vibrations in cases suffering from paralysis of the soft palate and uvula.

125. From these observations it would appear that one of the functions of the soft palate is to act as a vocal valve. It directs or conducts the voice from the larynx into the mouth alone for the formation of one kind of sound; into the nose alone for another kind, and divides the sound,



so as to allow it to escape from both of these openings, for still others. It is evident that while the velum is resting wholly on the base of the tongue, or while its whole free border is pressed against the posterior wall of the pharynx, the liability of its free border to vibrate, by the force of the air from the larynx, is reduced to a minimum. But when it is in either position that requires it to divide the sound between the mouth and the nose, then, on account of its free edge being suspended and placed immediately in the current of air from the larynx, the liability of its vibrating is increased to a maximum.

126. Under these circumstances it is seen that there is a necessity for a **provision to prevent these vibrations**. This provision, I am led to believe from my observations, is found in the uvula and the azygos prominence, the latter formed by the contraction of the elevator palati and uvulæ muscles. They are located in the center of this very mobile palate or valve, and by their support in both positions that require suspension (figures 7 and 8), prevent it from being shaken by the force of the current of air from the lungs. There can be no doubt that if there were no uvula or azygos prominence to prevent this thin edge of suspended flesh from vibrating, it would be shaken to such a degree, as to impart a tremulous tone to all sounds forcibly uttered, that pass through the mouth and nose at the same time.

127. The following questions have been frequently asked:

"1st. If the uvula is required to prevent the free border of the velum from vibrating during phonation, will not its loss impair the tone of the voice?"

"2nd. How do you account for the improvement of the voice in many instances, after the removal of the uvula?"

In answer to the first question I would say:

The excision of the uvula can affect those sounds only which are formed by its assistance, and not even then, if they are pronounced with the usual force of voice, because



the contact of the central portion of the velum on the base of the tongue will be support enough to prevent the velum from being shaken. Therefore, the difficulty in pronouncing sounds in high and loud tones, that pass mostly through the nose and a little through the mouth, will be in proportion to the amount of loss of support that the velum suffers. As excisions usually leave a stump of the uvula, and the central portion of the soft palate, will prevent any vibration during sounds made with the *usual* force of breathings.

I have observed that a patient, who has but recently undergone an operation for an excision of an elongated or hypertrophied uvula, may talk in an *ordinary* tone with greater ease than before the operation, but just as soon as he utters words with *more* than the *usual* force of voice, such, for instance as he would require to address a person at a distance, some of his efforts will remind him of the excised uvula, and though not causing as much pain as the knife did, will be sufficient to compell him to cut his sentences short of their intended length. The reason of this effect on the uvula appears to me to be this: The heavy uvula had given so much support to the soft palate, that, though it had been acting as an impediment to all kinds of sounds, the velum required very little of its own pressure on the base of the tongue to prevent these vibrations, but after the excision, greater pressure was required, and this pressure was the occasion of the pain.

128. The loss of the uvula does not interfere with the formation of the two semi-lunar shaped openings formed by the borders of the velum and the dorsum of the tongue, by which the voice is allowed to escape from the mouth, and thus provide for perfect vocalization. The loss of the uvula takes away only a part of the support from the soft palate. Even if there be no stump left after the excision, the tongue will learn to overcome the defect by the increased elevation of its dorsum, which then becomes more convex than was required to form the two semi-lunar openings, when the whole of the uvula was present, and



in this way allows both a greater pressure of the tongue and more of the central portion of the velum to rest on the tongue. But if the soft palate suffers so much loss of substance in its central portion, that its concavity is equal to the convexity of the dorsum of the tongue, thus preventing the formation of the lower semi-lunar shaped openings, shown in figure 8, neutralizing all support to the lower free edge of the velum, there will be some sounds—such as pass mostly through the pharyngo-nasal cavity, and a little through the mouth—given imperfectly, in spite of all efforts to overcome the disability; because the proper tone requires that the velum shall be raised to allow a part of the sound to pass to the mouth, and this act of elevation exposes it to the force of the air from the larynx, which force, by causing the unsupported edge to vibrate, is the cause of the imperfection of the sounds. Again, if the loss in the center of the velum be greater than can be closed by the greatest convexity of the dorsum of the tongue, the disability will be equal to that caused by a perforation of the soft palate, and in addition, there will be a tremulousness of many semi-nasal tones, when speaking loudly, as addressing an individual at a distance. That the intermittent tone is occasioned by the vibrations of the central portion of the velum, is evident from the pain or weariness experienced in this part after lengthy speaking in a loud voice. This pain was experienced by two patients while under my care, whose soft palates were notched to this extent by ulceration.

129. In answer to the second question—"How to account for the improvement of the voice after removal of the uvula?"—I would ask: is it claimed that this improvement in speech is equal to the patient's vocalization at the time that his uvula was in a healthy condition? It cannot be; this I know from observations made on this subject during the last fourteen years. That a relative improvement in speech does follow an excision of an elongated or hyperplastic uvula, there can be no doubt, because this operation brings the organ **nearer** to its **normal** size and



condition. But it resembles the improvement made by perforating the membrana tympani, in a case of deafness caused by a partial closure of the Eustachian tube. Such improvement can never equal the action of the organ in its normal condition. This being the case, the effect of the excision will be the removal of the cause of the mechanical hindrance to the utterance of every word spoken by the patient, made in any degree of force. The operation will leave a stump which will not be a hindrance to every word, but a cause of inability to pronounce some words on forced vocalization only; and even this will be overcome in time as the dorsum of the tongue becoming more convex. Therefore, to admit that the removal of a diseased uvula may improve the ability to speak in the usual tone of voice, does not prove that it was the uvula's removal alone, that was the cause of the improvement; for, if such were the case, the excision of the healthy uvula would not only be advisable, but desirable.

The effect of the amputation of the whole of the uvula, besides its being a loss of the greater part of the support of the velum, is to prevent the formation of the lower portion of the azygos prominence from attaining its greatest height, which is done by the contraction of the elevator palatale muscles. This height of the prominence is required to prevent, by its contact with the posterior wall of the pharynx, the vibrations of the velum during the formation of many seminasal sounds.

130. The nearer the surgeon can make the diseased uvula take the shape and size of the normal one, the nearer it will approach its normal functions; that is, rendering the soft palate a non-vibratory valve, which is required for perfect phonation.

131. **The Pharynx** is the continuation of the pharyngo-nasal and oral cavities. It is concerned in the functions of respiration, deglutition and vocalization. As a cavity, it is very irregular, and funnel shaped; tapering downward as the vocal cords and the œsophagus are approached. It is lined with mucous membrane, having a



squamous epithelium. Here the respiratory and alimentary passages combine to form a common passage.

This passage has four openings all capable of closure: one toward the mouth; one toward the œsophagus, both of which are alimentary. Another toward the pharyngo-nasal cavity, and the fourth toward the vocal cords. These two are respiratory, and vocal.

**132.** The contraction of the pharynx in the act of deglutition is quite momentary, a part of the act being voluntary and a part involuntary. When the food is thrown by the tongue beyond the isthmus of the fauces, it cannot be recalled; but is necessarily and unavoidably carried forward to the stomach. It is remarkable that it is very difficult to contract the muscles of the pharynx at will; that is, unless the tongue forces something—some saliva, if nothing else is in the mouth—into the fauces to act as a stimulus, as volition alone is not sufficient to excite the movement.

So highly sensitive is the mucous membrane of the pharynx, that the slightest touch of a substance, or even air from a spray producer is sufficient to induce contraction of the faucial muscles, which the will of the patient is scarcely able to control. Without this stimulus, it is doubtful whether these muscles would obey the will alone; consequently, if there is a paresis of the mucous membrane of this part, deglutition will be exceedingly difficult, tiresome and annoying. Cases of this description are not very common. Those that I have had under my care seem to be unaffected in their ability to taste in all parts of the mouth and tongue; yet according to Todd and Bowman, the glosso-pharyngeal nerve must be implicated.

**133. THE TONSILS** are two large glands situated on each side of the base of the tongue, between the arches of the palate. They are composed, almost entirely, of a large number of mucous follicles aggregated into a mass, and are exceedingly vascular, being supplied with blood from the pharyngeal and the palatine arteries. They have from twelve to fifteen distinct orifices, which lead into



crypts. Their function is evidently to afford a fluid for the lubrication of the food in its passage from the mouth to the oesophagus and possibly to aid digestion by mucin, as does salivary ptyaline. The mucus is very viscid but transparent, when the glands are in a healthy condition; but white and opaque when they are in an inflamed condition. It is not known what is its composition, but probably it is little besides simple mucus. That it is not identical with the saliva may be inferred from the difference in the structure of the glands.

**134. THE LARYNX** has two distinct functions to perform: namely **respiration** and **vocalization**; and it obtains its supply of motor nerves from two different sources.

Those which are concerned in the production of sound, originate from the spinal accessory; those for respiration are derived from other motor nerves (facial, hypoglossal, cervical) which also communicate with the pneumogastric. It is a box, composed of pieces of cartilage which may be moved on each other, and incloses membranous bands called **vocal cords** by which vocal vibrations may be produced. Air is admitted to the lungs between these membranous bands, the opening being called the **rima glottidis**. During respiration, the rima glottidis is increased in its lateral diameter and decreased during expiration, so that the air in the lungs is more or less compressed, which causes a greater absorption of its constituents. The muscles employed in thus opening and closing the glottis are supplied by the inferior laryngeal, branches of the pneumogastric nerve; consequently, if these nerves—the inferior laryngeal—are unduly compressed, as by a tumor or aneurism, the movements of the glottis are interrupted and the respiration is oppressive and difficult, and sometimes threatens immediate asphyxia. The greater width of the glottis during inspiration, facilitates the entrance of foreign bodies into the trachea. The larynx is raised, during deglutition, high enough to allow the epiglottis to cover the passage to the lungs, but if the stylopharyngeus and palatopharyngeus muscles are impeded in their action



by diseased glands or a large tumor, there will be great liability to strangulation from food passing into the larynx; because this organ cannot be lifted high enough to allow the epiglottis to shut off the avenue to the trachea.

**135.** If the **epiglottis** does not completely close the larynx, the passage of solid or liquid substances into the trachea, intended for the stomach, may, as already stated, occasion serious interference to respiration. But it is remarkable that the tongue soon learns, as it were, to prevent this passage, in the case of partial or almost complete loss of the epiglottis, by its action in closing the glottis completely at almost every act of deglutition.

**136.** The removal of a little more than half an inch of the **epiglottis**, once done in this city, and evidently by mistake, permanently changed the victim's voice. The effect of the amputation was so very painful that the patient did not swallow anything for nearly two weeks. A No 12. male flexible catheter was used to administer nourishment. On an attempt to use the catheter, the liquid food passed too rapidly, and the consequence was an overflow that strangled the patient so severely that life was, for a few moments, despaired of. Saliva was the first thing swallowed. In about three months after the excision of the epiglottis, he could swallow solid food; but not liquids. In a few weeks more, liquids could be swallowed. At the present time, almost thirty years after the operation—the act of deglutition is performed with no more apparent difficulty than if the epiglottis had not been removed. The medical man that performed the operation has been dead for many years. I have been unable to get the patient's consent to allow others to inspect his throat, or to have a photograph taken of it.

**137. THE VOICE.** Without this peculiar endowment, man's intellect would not be so highly developed as it is. The air, expelled from the lungs, causes the vibration of the vocal cords. That the voice is due to the vibration of the vocal cords is obvious from the following facts: compression on the *pomum Adami* with the finger will in-



stantly change the tone temporarily. Ulceration of either or both vocal cords will produce a permanent change. Hoarseness, caused by thickening of the mucous membrane of the vocal cords, also affects the voice. An opening into the trachea, will take away the voice. Division, or pressure on the inferior laryngeal nerve, by which the influence of the will is brought to bear on its muscles by the action of which the tension of the vocal cords is regulated, destroys or seriously impairs the voice.

## CHAPTER VI.

### PRACTICAL PHYSIOLOGY OF THE EUSTACHIAN TUBE.

**138. THE EUSTACHIAN TUBE\*** is the air passage that connects the pharyngo-nasal cavity with the middle ear.

This is the most important portion of the ear. It is the first affected in every ear trouble, with perhaps, the few exceptional cases, in which cerebro-spinal meningitis produces deafness.

There is no part of the ear about which a knowledge of its physiological actions is so essential to a successful treatment of the diseases that affect it, as that of the Eustachian tube.

For these weighty reasons, and because I have done a large amount of original investigation on the subject of the function of the Eustachian tube, that seems to disprove the theories held by the profession, in general, I

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\* It is said that its existence was known to Aristotle B. C. 350; but Bartholomeus Eustachius, an Italian, was the first to describe it in 1562.



propose to state the results of these investigations and my views of the use of this passage, *in extenso*.

**139. The Eustachian Tube has two functions only**, namely: one, that of allowing air to enter the tympanum, and the other, that of graduating the quantity, so as to maintain it in a rarefied condition. Stated in other words: In the healthy ear, the air is not allowed to enter the middle ear so freely that it ever attains the same density as the outer air. The entrance of the air is under continuous restriction or limitation, so that it is continuously in a rarefied condition.

This canal is not a drainage tube to the middle ear. Healthy mucous membrane does not secrete sufficient mucus to form a stream; nature makes no provision for diseased action. Those who say that it is a drainage tube have never proved their assertion.

**140. The generally accepted theory of the method by which air is supplied to the middle ear**, is the one first promulgated by Mr. Joseph Toynbee, of London, in 1853, namely: That the walls of the Eustachian tube are in contact when at rest, but that they are drawn apart by the tensor and levator palati muscles at every act of deglutition to such an extent that the "air can either enter or recede from the tympanic cavity, and *thus be always of the same density as the outer air.*" (Diseases of the Ear, 1868, p. 192.) The proof that he and all others adduce in support of this theory, is the fact that *deglutition relieves the deafness* that is occasioned by *forcible inflation of the tympanic cavity*, by holding the nostrils closed while air is driven from the lungs into the ears.

This theory is still held by all Otologists and Physiologists whose works I have read, who have expressed an opinion on the subject.

**141. Method of Air Supply According to various Authors.** I will now quote quite a number of standard authors on the method of air supply to the middle ear, commencing with the renowned and lamented Toynbee:



13. In February, 1853, Joseph Toynbee, Esq., F. R. S., is quoted in the *Med. Times and Gazette*, London (taken from the *Am. Jour. of Med. Sciences* for April, 1853, page 450). "He commenced by alluding to the opinion generally held by anatomists, viz.: That the guttural orifice of the Eustachian tube is always open, and that the cavity of the tympanum is constantly continuous with that in the cavity of the fauces. An examination of the guttural orifice of the tube in man and other animals has led the author to conclude that, except during muscular action, this orifice is always closed, and that the tympanum forms a cavity distinct and isolated from other air. The muscles which open the Eustachian tube in man are the tensor and levator palati, and it is by their action, during the process of deglutition, that the tubes are ordinarily opened."

These views were repeated in the proceedings of the Royal Medical and Chirurgical Society, and published in the *London Lancet*, of Nov. 22, 1853.

14. In 1857, Toth and Bowman in their *Physiology*, page 109 say: "The object of the Eustachian tube is chiefly to allow the free ingress of air into the tympanic cavity, in order to provide for the due vibration of the membrana tympani and of the chain of bones. It also, by permitting a free egress of air, renders the tympanum a non-reciprocating cavity, and therefore prevents the production of echoes in it, which would materially interfere with perfect hearing."

15. In 1864, A. Von Troltsch, in the translation by Roosa, page 126, says: "The constant equalization of air between the cavity of the tympanum and the pharynx, is kept up by means of the muscles, especially during the act of swallowing, since they are inserted on the cartilaginous wall of the tube and affect by their motions the size and shape of the opening."

16. In 1869 A. Von Troltsch, in his work on "Diseases of the Ear", translated by Roosa, says on page 180: "It [the Eustachian tube] serves as an outlet for the secretion of the ear [tympanum], but especially as a passage for the renewal of air in the middle ear. It is therefore a ventilation tube, by means of which the meeting of strata of air of equal density above and behind the drum is made possible, and the air in the tympanum maintained of the same degree of tension as that of the external atmosphere." Again on page 187, he says: "But the tube is at the same time to be a ventilation tube, by means of which a regular exchange of air between the pharynx and the cavity of the tympanum is brought about, it is necessary that its regular and frequent gaping or opening should take place only in this wise, that the strata of air, before and be-



hind the membrana tympani, be kept of the same tension and density that is requisite for a normal vibratory capacity for the drum! Experience has shown that such an opening of the tube takes place with every act of deglutition."

(c) In 1869, Dr. A. Politzer, in his work on the "*Membrana Tympani*" translated by Drs. Mathewson and Newton, says on page 155, "When we swallow without closing the nostrils, a slight momentary rarefaction of the air in the throat occurs, which, since the Eustachian tube is simultaneously open, also effects the air in the tympanic cavity."

(f) In 1869, Dr. H. Kaiser of Dieburg contributed to the *Archives of Otolology* an article on "The Mechanism of the organ of Hearing", translated by Dr. A. H. Buck; on page 679, he says: "The opening in the tympanum which leads to the Eustachian tube has this mechanical importance, that by means of it the tension and temperature of the air in the cavities of the pharynx and tympanum may be kept in a state of equilibrium".

(g) In Dec., 1870, Peter Allen said: "The chief use of the Eustachian tube is to provide ingress and egress of air to and from the tympanum, so as to bring about a regular interchange of air between that contained in the naso-pharyngeal cavities and that within the drum. It is now generally believed by anatomists that the surfaces of the Eustachian tube usually lie in contact, and that the too ready ingress of atmospheric air to the tympanic cavity is prevented by the tensor and levator palati muscles, also that the principal function of these muscles is to open the tubes during their contraction in the action of swallowing. It necessarily follows that whenever this act is performed, the Eustachian tube must be opened. Afterwards its lips again fall together and no air can enter or recede from the drum. It is obvious that the tympanum must thus be generally a closed cavity, and will contain air of the same density as that on the outside, air only entering and escaping from its interior in such proportion as is needful for maintaining the same tension on both the inner and outer side of the membrana tympani. Without such an arrangement for the renewal and equalization of air, the requisite vibratility of the tympanic membrane could not be kept up,—the air would become exhausted or absorbed, the membrana tympani and ossicles would fall inward and cause pressure upon the vestibular fenestra and labyrinth fluid." *Aural Catarrh* by P. Allen, pp. 65 and 66.

(h) In 1872, Prof. Rudinger, of Munich, in *Stricker's Manual of Histology*, page 971, says: "In addition to conducting away\*

\* *Utilized* by the Author.



its own secretion and that of the vascular mucous membrane of this cavity, it is also able to produce a ventilation of the cavity by means of the mechanism which it contains."

He certainly is in doubt as to the function of the tube, for he says: "Whether the Eustachian tube plays an important physiological rôle in the conduction of sound in the tympanum, and whether it has any connection with the voice, and if so, what this is, cannot be satisfactorily answered from the study of comparative morphology. The final determination of these questions must remain for experimental investigations."

In 1878, W. B. Dalby, F. R. C. S., London, says, in his book on "Diseases of the Ear," page 50: "\* \* \* the Eustachian tube, whose office appears to be, by admitting air from the pharynx, to insure the same pressure from air within the tympanum as from the air external to the membrane.\* \* \*"

In 1873, Dr. Roosa, in his work on "Diseases of the Ear," page 213, says: "The known functions [of the Eustachian tube] are to conduct away the secretions of the cavity of the tympanum, and to act as a ventilator of this part. What part it has to do with the conduction of sound to the ear, or what connection it has with the voice, has not as yet been determined."

In 1873, Mr. J. P. Pennefather, in his work on "Deafness," page 7, says: "On its [Eustachian tube] use as a component part of the organ of hearing, writers on this subject are not agreed. Some contend that besides supplying air to the cavity of the tympanum, it also communicates the sonorous vibrations based on the fact, that in endeavoring to catch an indistinct distant sound the mouth is almost invariably opened." Again on page 66, he says: "\* \* \* through them [Eustachian tubes]

an exit is provided for redundant tympanic secretion; they are also the channels through which air is supplied to the drum. It is by this air that the different membranes covering the apparatus in the tympanum receive support." On the next page, he says: "\* \* \* after a full inspiration the drum is filled with air and its egress is barred by the position of the velum [?], which is tight and horizontal. \* \* \*"

In 1873, Prof. H. Helmholtz, of Berlin, in his work on "The Mechanism of the Ossicles of the Ear," translated by Drs. Bick and Smith, on page 14, says: "Finally, it is necessary, at least for the deeper and middle tones of the scale, that there should be an equality of pressure between the air contained in the middle ear and that of the external auditory canal."

In 1878, Dr. H. Schwartze, of Halle, in his "Pathological



Anatomy of the Ear," translated by Dr. J. O. Green, on page 180, says: "The Eustachian tube in man is closed, when at rest, by the slight contact of its walls. It is, however, a condition of normal hearing that the canal should be from time to time opened in order that the differences of air-pressure between the tympanum and the atmosphere may be equalized by the so-called ventilation of the tympanum."

(n) In Nov., 1879, Dr. A. Mathewson delivered a lecture before the Anatomical and Surgical Society, of Brooklyn, N. Y. and published it in the Half-yearly Compendium for 1880, page 151; in this he says: "The functions of the Eustachian tube—very simple but not the less important—are to effect an interchange of air between the middle ear and pharynx, thus keeping the sound-conducting apparatus in a proper state of tension, to serve as an outlet for sound vibrations from the middle ear, and to facilitate by ciliary action the removal of secretion from that cavity. It seems necessary for the perfect action of the membrana tympani and the auditory ossicles that there be an equilibrium between the air in the cavity and that pressing on the membrane through the external meatus. When the tube is in any way obstructed so that the access of air to the middle ear is prevented, the contained air is soon absorbed by being taken into the blood-vessels, as in the lung, and the drum membrane insufficiently supported is forced inward by the pressure of the external air through the meatus, and is seen, on inspection, sunken and collapsed, and the hearing is impaired."

(o) In 1880, A. H. Buck, in his work on "Ear Diseases", pages 1 and 2, he says: "The second cavity [the middle ear], so far as the naked eye can see, is a closed cavity, filled with air, which, through the medium of a minute canal (the safety-tube of the Eustachian canal), remains at the same degree of density as the air on the outer side of the membrana tympani (Rudinger); or, in other words, the atmospheric pressure upon the outer side of the membrana tympani and that upon the inner side exactly counterbalance each other."

(p) In 1880, Darling and Ranney, in their excellent work on "Anatomy" page 590, say: "It is through this latter communication [the Eustachian tube], that air is permitted to enter the cavity of the tympanum, and thus the membrana tympani is allowed to vibrate between two bodies of air whose density is equal, and thus to truly perceive the quality and tone of the note which it is called upon to record."

(q) In Dec., 1881, Dalton in his Physiology, page 558, says: "The existence of this canal secures equality of atmos-



pheric pressure on both sides of the membrana tympani, a condition essential to its free vibrations under sonorous impulses. The external barometric pressure varies from time to time; and if the middle ear were a closed cavity, this variation would of itself change the tension of the membrana tympani and interfere with its function. [A very slight cause of interference indeed, in fact.] Although the walls of the Eustachian tube are habitually in contact with each other, they readily yield to the atmospheric pressure in either direction, and thus reestablish the equilibrium between the outer air and the cavity of the tympanum."

In 1881, M. Foster, in his *Physiology*, page 712, says: "The Eustachian tube.--This serves to maintain an equilibrium of pressure between the external air and that within the tympanum, and to serve as an exit for the secretions of that cavity." "The Eustachian tube is undoubtedly open during swallowing, but it is still disputed whether it remains permanently open or is opened only at intervals."

In 1881, Flint, in his work on *Physiology*, page 621, says: "There is, under certain conditions, a free circulation of air between the pharynx and the cavity of the tympanum through the Eustachian tube, and from the tympanum to the mastoid cells."

In 1881, Dr. W. F. Mitterdorf, in his work on "Diseases of the Eye and Ear," says, on page 389: "The Eustachian tube is lined with mucous membrane which has ciliated epithelium. It opens during the act of swallowing, and air can be easily forced into the tube at this moment from the cavity of the nose."

In 1882, A. L. Rinney, in his *Medical Anatomy*, page 44 says in a foot note: "The presence of air, having the same density and moisture, on both sides of the membrana tympani is essential to the proper perception of sound, as that membrane thus vibrates freely and accurately records the number of vibrations peculiar to each individual note."

In Nov., 1884, Roosa, in his 6th edition of his "Diseases of the Ear" says, on page 245: "The known functions are to conduct away the secretions of the cavity of the tympanum, and to act as a ventilator of this part." Again on page 255, he says "this passage [the Eustachian tube] serves to maintain an equilibrium of pressure between the external air and the tympanum, and as a means of exit of the secretions of that cavity."

Roosa says: "Poltzner concludes that--1. The tube is not constantly open. Its permeability varies in different persons. In some cases



even in quiet respiration, an interchange of air from the pharynx toward the tympanum takes place; in others the act of swallowing or a powerful expiration becomes necessary.

2. The tube is especially opened by the action of the muscles, during the action of swallowing, as shown by Toynbee and Politzer.

3. A difference in the pressure of the air, is more easily equalized from the tympanum to the pharynx, than from the pharynx to the tympanum." *Diseases of the Ears*, page 255.

(w) In 1884, in Hooper's *Physician's Vade Mecum*, revised by W. A. Guy, M. B., F. R. S., and John Harley, M. D., F. L. S., London, published by Wm. Wood & Co., on page 252, the following is found: "In a state of rest of the muscles of the palate, the air in the tympanum is shut off from that of the throat, but in every act of swallowing the faucial extremity of the Eustachian tube is opened by the contraction of the levator and tensor palati."

(x) In 1884, J. Ashhurst in his "Surgery" says, on page 308: "A perfectly normal condition of the tympanic mucous membrane and a perfect condition of the function of hearing, are scarcely possible, unless the membrana tympani is subjected to the same degree of atmospheric pressure on both sides."

(y) In 1884, Lenox Browne, in his excellent work on "Voice, Song and Speech", page 185, says: "These tubes [Eustachian] are, in a state of health, slightly open, and they are still more widely opened during each act of swallowing. By these means the air outside and inside the drumheads of the ear is kept in the same state of density thus allowing the membranes to vibrate regularly and freely, a condition which is indispensable to good hearing."

(z) In 1885, Holden, in his "Anatomy", page 829, says: "It is [the middle ear] lined with mucous membrane and filled with air, which is freely admitted through the Eustachian tube; so that atmospheric pressure is equal on both sides of the membrane."

(z<sup>2</sup>) In 1885, Dr. A. S. Hobbs, of Atlanta, Ga., in his interesting "Epitome of the Eye, Ear, Throat and Nose Diseases", on page 106, says: The [Eustachian] tube is opened during the act of swallowing by the action of the pharyngeal muscles on its walls and an equilibrium of density is constantly maintained between the air in the pharynx and tympanum."

(z<sup>3</sup>) In 1896, Dr. L. Landois and Wm. Stirling, M. D., in their *Text-Book of Human Physiology*, page 822, say: "The Eustachian tube is the ventilating tube of the tympanic cavity. It keeps the



condition of the air within the tympanum the same as that within the pharynx and outer air."

142. It is seen, from the above quotations, that the opinion of the profession runs thus: The act of swallowing, as Teynber says, opens the Eustachian tube all the way into the middle ear, so that the air can freely enter or recede; therefore the air density in the cavity, is equal with that of the surrounding atmosphere; this is known to be correct, from the fact, that when the ear cavity is either inflated, or air is abstracted from it—the effect of which acts being a disagreeable sensation and a marked deafness—deglutition relieves both symptoms at once. Here they rest their case.

I am satisfied that if this experiment, that is, condensing or rarefying the air in the tympanum, had been accurately tested by the watch, or some other means of exactly measuring the hearing distance, while the experiment was being made, the functions of the Eustachian tube could have been discovered long ago, and the treatment of the diseases of the ear would have been proportionately more rational and successful; for one error frequently leads to another, as it did in this case, for it led them to consider that the tube is a means for draining the middle ear.

143. I deny that the act of swallowing, in relieving deafness occasioned by either condensation or rarefaction of air in the tympanic cavity, proves that the Eustachian tube is opened so that "air can freely enter or recede from the tympanum." I do not deny that some air does, under these circumstances, enter or recede so that a manifest relief of deafness is experienced. I know that the relief is so great, that it *seems* as though the hearing were *completely restored* by deglutition. But this relief proves no more than that the membrana tympani was allowed, by the passage of air, to resume *so nearly* its normal concavity, that the experimenter *thought* his hearing was *completely restored*. And, as he thought his hearing was *completely restored*, he thought that the air freely entered



the middle ear so as to restore a perfectly normal air density, and that this proved the air was of equal density on both sides of the membrana tympani. Had he measured his hearing by means of a watch, he would have found that perfect audition *was not restored*; and consequently, that the Eustachian tube was not an open passage during the act of swallowing.

**144.** It is seen that the point in dispute can be settled only by **exact measurement**. The following method of making this experiment will show the exact state of the hearing, as affected by deglutition.

**Experiment No. 1.** **FIRST**, attach one end of a long thread to a watch, retaining the other extremity in the hand. Then find the utmost hearing distance from the watch (as in the usual method for testing the hearing), after which place the taut thread to the nose. The length of this thread, from the nose to the watch, is the normal hearing distance from the watch.

**SECOND**, inflate the tympanic cavity by the Valsalvian method, as Toynbee directs, then immediately swallow some saliva, and instantly note the hearing distance from the watch on the thread.

The hearing distance from the watch will be found to be a little less than before the inflation, returning again to the normal distance only *after* the lapse of a longer or shorter period of time; usually a minute or so.

**145.** The following are the reports of a few friends who tried this experiment at my request:

"Feb. 9th, 1868.—I heard the watch nearly twelve feet. I then blew my breath into my ears, producing a great fulness. After I swallowed some saliva, this fulness left me entirely; but I had to step half a step nearer the watch to hear it, and a few minutes (not more than two or three), I heard it again better than before.

James E."

"July 29th, 1872.—After repeated efforts, I overcame the desire to swallow a second time, and found that the usual hearing returned in from three to five minutes after the first act of swallowing. If I



swallowed twice, it returned sooner, and even if I swallowed as often as I desired, I was still compelled to wait certainly over half a minute for the usual hearing to return. J. C. W., Lebanon, Ill."

-Aug 6th, 1872. -(Watch covered)-Inflated my ears, and immediately swallowed twice, and heard at second knot (14½ inches), namely, in 26 seconds [23 inches]. Rev. E. A. H.

Collinsville, Ill."

-St. Louis, Jan. 14, 1886. -First tied a piece of twine to a watch, suspended the watch where I could just hear it, 41½ inches. I then blew my ear with my breath, holding my nostrils closed, and swallowed some saliva, and heard the watch at 19½ inches, and three minutes after I heard it at the first distance."

Miss Julia Vasse; daughter of Dr. Vasse, Thomas Hill, Mo.

This is an experiment that any physician, with an perforate membrana tympani, can make for himself, and demonstrate the correctness or incorrectness of my assertion.

146. Almost every day in my practice, I have the above experiment repeated in another way. After spraying the nostrils of some ear patients and having them fully blow the secretion from the nasal chambers, I have noticed that their hearing was markedly increased, as shown by the watch. Then, on inflating the middle ears by the air bulb, and immediately testing the hearing by the watch, I have found that the hearing was markedly decreased, although they had, as all patients invariably do, swallowed several times after the inflation. Several of them observed this effect, and did not care to have the air bouche used. This must have been noticed by many of the physicians, who treat ear diseases.

The explanation of the increase and decrease of the hearing in these instances, will also assist in proving the same facts as was proved by the experiment of my friends, just given. It is evident that the use of the spray producer in the anterior nares, and the blowing of the nose inflated the middle ears sufficiently to increase the hearing; that is, these two operations, by forcing air into the middle ear, allowed the membrana tympana to fall far enough outward, and thus more nearly approach their normal



positions; and that further inflation, caused the drum membranes to be forced beyond their normal situations for good hearing. If the Toynbee method is right, the act of swallowing, which is *always performed immediately after* these inflations, should have instantly relieved them of the deafness following the over-inflation, but it did not, as has been observed by a large number of my patients.

**147.** The shortening of the hearing distance, under these circumstances demonstrates, without any chance for doubt, that the air did not all escape from the tympanic cavity during deglutition.

If the Eustachian tube was opened all the way into the middle ear, so that "air could freely enter or recede" the air within and without the tympanum would have been at once equalized, thus allowing the membrana tympani to resume instantly its normal position, with the hearing as perfect as before the inflation. Even in those experimenters, who swallowed saliva several times, the usual degree of acuteness of hearing did not return for some minutes.

**148.** Evidently, there was a small portion of the Eustachian tube that was not opened by the action of the tensor and levator\* muscles; and this portion offered so little resistance to the passage of the super-abundant air from the cavity, that when the tensor and levator palati muscles partially opened the tube, the natural resilience of the membrana tympani, assisted by the tensor tympani, muscle, was able to force out a sufficient quantity of the air to relieve the ear of the prominent symptoms occasioned by its presence; leaving still, however, too much for the usual hearing to return, and compelling the experimenter to wait a short time for the mucous membrane of the middle ear and mastoid cells to absorb the remaining portion, which could not escape during deglutition, and which caused the membrana tympani to become more

\* I am not ignorant that some claim that the palato-pharyngeus also assists in opening the Eustachian tube.



that that normal. After waiting for the consummation of this rarifying process, the usual degree of hearing returned.

149. I will now undertake to prove that I am correct by another experiment:

**Experiment No. 2.** FIRST; note the hearing distance by the watch, using the thread as before.

SECOND; close the nostrils with the thumb and finger and swallow some saliva— which abstracts air from the middle ears— then immediately swallow saliva again, and note the hearing distance by the watch. It will be found much less than before the abstraction of air from the middle ears thus showing again, that the Eustachian tube was not opened into the middle ears by the act of swallowing, or during the act.

These two experiments alone prove the erroneousness of the Toynbee theory of air supply to the middle ear.

150. **FIRST ANNOUNCEMENT.** In August, 1868, I gave the late Prof. John T. Hodgen, of this city, my opinion that Toynbee, Troltsch, Roosa, and others were in error when they said that air was supplied to the middle ear *only* during deglutition; and that the observations I had made up to that time, proved conclusively to me, that **air continuously enters the middle ear**; also, that the air in the middle ear is always in a rarefied state.

In September of the same year (1868) I read to Prof. Sam. Christopher, now of St. Joseph Mo., the cardinal facts of this subject. Subsequent to this time, I very frequently gave my views in full and read a paper on this subject, and allowed it to be read by a large number of friends, among them Dr. David Prince of Jacksonville, Ill., and Dr. Homer Judd, of Alton, Ill.

Although perfectly satisfied that my views were supported by incontrovertible facts, yet I did not read them before the St. Louis Medical Society until February 1872. In these days of rapid medical progress, it is not safe nor wise to wait too long a time before making public new physiological facts; but, as what I had to announce, dif-



ferred so materially from the theories of those in whom the profession had great confidence, I hesitated to contrast my views with their learned and matured opinions; and were it not that I had thoroughly tested the conclusions, which I had arrived at, through a period of five years, I would not, even at that time, have presumed to dispute their opinions on so important a subject.

**151.** The following is a brief statement of the main points of the difference between the views, entertained by Physiologists, and those I hold and propose to substantiate:

(a) As to the method by which air is supplied to the middle ear:

I hold that **air enters the middle ear continuously in a uniform stream and in a graduated quantity, day and night**, and that the act of swallowing does not affect the supply, either as to quantity or opportunity for entrance.

They say that air enters only on deglutition; making the air supply to the middle ear as *inconstant*, and as *irregular* as is the act of swallowing.

I hold that the act of swallowing is not sufficiently frequent nor sufficiently uniform to maintain a uniform air density in the middle ear.

They say that this act is sufficiently frequent to maintain this uniformity.

(b) As to the density of the air within the tympanic cavity:

I hold that it is constantly in a rarefied condition.

They say that it must be continuously in equal density with the surrounding atmosphere.

(c) As to the cause of the uniform concavity of the membrana tympani:

I say it is solely due to the rarefied condition of the air within the tympanum.

Some authors are so cautious that they will not venture an opinion as to the cause of this concavity. While some affirm that it is due to the traction of the tensor tympani (?); still others speak of the membrane being relaxed and falling inward (?).



As to the functions of the Eustachian tube:

I hold that its functions, besides allowing air to enter the middle ear, are to regulate the amount of air that enters the cavity.

They say that, besides allowing air to enter the middle ear, it is a drainage tube. As already stated healthy mucous membrane does not require drainage; nor is there evidence that any air cavity is drained.

This brief statement of both sides of the questions are to be discussed in the following pages, will assist the reader in understanding the various points as they come in review.

### 152. OBSERVATIONS ON THE EUSTACHIAN TUBE THAT PROVE THE PREVAILING THEORY CONCERNING ITS FUNCTION INCORRECT.

We cannot make experiments on the Eustachian tube by means of instruments, without incurring great risk of injuring this very important organ; but as it is, in some instances abnormally open, and in others, abnormally closed, and as the deafness arising from these opposite conditions may be temporarily overcome, so that the patient's hearing may be made equal to, or even exceed the usual degree of acuteness, we have excellent opportunities of judging whether the Eustachian tube should be open or closed in the healthy state; that is, whether the air can pass through it freely, as all otologists say, or in limited quantities, as is the fact.

Since 1868, I have had the opportunity of examining over a hundred patients afflicted with **abnormally open Eustachian tubes**. The observations made on these cases are additional proof that the Toynbee theory is erroneous. And I found still other evidences that corroborate my views, in the facts observed while treating patients who suffered from **abnormally closed Eustachian tubes**, the result of acute inflammation.

### 153. CASES OF PATENCY OF THE EUSTACHIAN TUBE; that is, those having this canal abnormally open.

I will now relate the histories of cases on



which I made the observations that led me to come to the conclusions to which I have alluded. I have had, since that time, so many similar cases that I am sure that they cannot be considered as uncommon in the practice of an aural specialist. The time consumed in reading the prolix histories of these cases will be compensated by the valuable information they shed on this rarely mentioned, yet really important disease.

I take it, that the following is a fair deduction: If the Eustachian tube is opened as far as into the middle ear, by the tensor and levator palati muscles, for normal ventilation of this cavity, at every act of swallowing, then anything that might open the tube, *aside* from the action of the muscles mentioned, could not on account of such opening, be a cause of defective hearing.

From the symptoms observed in the following cases that had tympanophony—that is, hearing one's voice through an abnormally open Eustachian tube, it is expected to prove that the mere opening of this tube for a short or long period of time, is a cause of too great a disability to the organ of hearing, and too much annoyance, to admit of its being open during deglutition, without producing some, if not all the same phenomena; and that while the Eustachian tube is in a patent or abnormally open condition, the membrana tympani is less concave than normal, and the hearing, consequently, *markedly decreased*.

**154. CASE I.** Feb. 5th, 1868.—Otto Z——, German, æt. about 28 years, farmer, from Columbia Mo., came to me to be relieved from excessive noise in his left ear while talking. He had been deaf in this ear since 1862. He supposed that it was occasioned by long exposure in the woods. This phenomenon had first appeared eight days before, and with it considerable increase of deafness, and a sensation of fullness, or as if something were in the ear. He heard his voice in this ear first. He did not hear each word pronounced distinctly, but they seemed to lap, as it were, one over the other, producing a confusion of sounds.

When pronouncing one short sound quickly, as "ah," through the nose, there was no lapping, but two sounds, one following the other



in instant succession; the first sound in a strong, hollow, deep tone immediately in this ear; the second one in the ordinary tone, and heard soon without. Several nights before, he was awakened out of sleep by a blowing sound in this ear, occasioned, no doubt, by his breathing.

On inspection of the left ear, the concavity of the membrana tympani was found to be but slightly changed from the normal; so much so as to escape my notice during the first two days' examination. It was not until I had made up my mind that the tube was abnormally open, that I noticed the contrast between this and the right ear. Bearing distance with the watch at the right ear was  $\frac{3}{8}$  ft.\* left of hearing the pharyngo-nasal cavity, it was found coated by an accumulation of offensive, purulent secretion, the whole mucous membrane being chronically inflamed. The mouth of each Eustachian tube was much congested.

While examining his left ear, he twice asked me if I could not examine him through it. The sound of his voice in this ear was so distinct to himself, that he thought others must hear it also.

I removed the offensive secretion from above and behind the soft palate with a posterior nares syringe, using warm salt water (3) ad

After recovering from the choking sensation occasioned by the irrigation, it required nearly one quart of water to thoroughly cleanse the cavity. he found, upon answering a question, that he could not hear the sound of his voice in his left ear.

Feb. 6th. The sound of his voice in his left ear was absent for nearly two hours after the last treatment but returned after he had begun to use his handkerchief. The posterior nares were again irrigated, using about half a pint of warm salt water. The first syringing again stopped the tympanophony.

Feb. 7th. The sound of his voice did not return in this ear for four hours after the last treatment, and then without any known cause. He was again awakened by the blowing sound in his ear, which was still present. As the patient insisted on my listening to it, I took a nasal nasolating tube† and placed it in the ear. I found, to my great surprise, that the blowing sound was occasioned by his respiration, it being much more distinctly heard when breathing out through the nose with his mouth closed. It sounded somewhat like blowing over the mouth of an ounce bottle. On opening his mouth it could not be so distinctly heard; and when breathing through the mouth

\* This fraction means that the patient heard a watch at a distance of 36 inches, that could be heard 96 inches by persons of ordinary good hearing.

† I consider this a preferable name to that of "otoscope," or "diagnostic tube," being more descriptive of the use of the instrument.



alone, could not be heard at all. His voice, as heard from his ear, while not near so loud, had the peculiarly hollow sound heard on placing the stethoscope near the larynx of a patient while he is speaking.

These peculiarities were lost after one injection of the warm salt water but were made to return again—except the hearing of the respiration—by repeated blowing of the nose. The aural auscultating tube was again applied to the ear and the previous observation confirmed. Another douche with the syringe caused them to leave, but they again returned by blowing the nose. Politzer's air douche was not used for fear of injuring the membrana tympani.

Feb. 8th. The relief, afforded by the cessation of his voice going to this ear, lasted until he fell asleep. On awakening next morning he found the symptoms present. The upper and posterior part of his throat somewhat painful, and his hearing not so good. Watch heard in right ear,  $\frac{3}{4}$ , in left, same as before stated. Examination with the aural auscultating tube, and use of the syringe, confirmed yesterday's observations, with this difference; that greater exertion was necessary on the part of the patient, to clear the Eustachian tube after it was filled with water.

Feb. 10th. The patency did not return until the morning of the 9th, being absent about twenty four hours. Had more pain in the head than usual; tinnitus in right ear; hearing in this ear  $\frac{3}{4}$ . He snuffed warm salt water into his left nostril while his head was inclined to that side. After repeated efforts, this had the effect of shutting off the sound of his voice from this ear, but the relief was of short duration. Same examination with the aural auscultating tube, followed by using the posterior nares syringe was repeated; and as often as the Eustachian tube could be cleared of fluid by blowing the nose, confirming all before observed.

Feb. 11th. The tube remained closed about twelve hours. This morning he was successful in forcing water from his mouth up behind the soft palate into his nose, while his head was inclined to the left side. This stopped the sound of his voice in the left ear for an hour or two, or until he coughed or blew his nose, when he could again stop the sound of his voice by using more water.

This plan of experiments and observations was continued every other day until the 24th of February, when the tympanophony was permanently shut off. This was apparently caused by the application of a grs. x solution of argenti nitras on a sponge held against the mouth of the left Eustachian tube, for about two seconds.\*

On the 2d of March he could hear the watch with this ear when

\* This is not good practice. I would not make such an application now.



it was put away from contact, on the 6th when 1" from 1. The membrana tympani was now *more concave*, and the "cone of light" smaller and firmer. The hearing of the light car on the 6th of March,  $\frac{24}{28}$ . Although this is two inches less than when he first presented himself, he claims he can hear very much better, especially as he is not so much in doubt as to the direction from whence sounds came.

After the experiments and observations made on the 30th of February (1868), I considered that the case had demonstrated itself to be one of abnormally open Eustachian tube, and I then conceived the idea that it was necessary to have this passage constantly closed for normal hearing. Soon after this, my unsubstantiated conception was converted into almost positive conviction by finding that Mr. Toynece made a mistake in his first experiment, given to prove the correctness of his theory,\* and also that he was in error in the diagnosis of his cases that belong to this class, reported on page 155 of his work.

The following histories of other patients confirm what was observed in this case.

**155. CASE II.**—In the latter part of the month of March, 1868, I met my friend, the late Dr. Charles K——, of the firm of A. M. Leach & Co., Manufacturers of Surgical Instruments of this city, close his nostrils with his thumb and forefinger, and instantly make an inspiratory effort while his mouth was also closed. The reason for this procedure came instantly into my mind. I remarked to him, at the time, that he abstracted air out of the tympanic cavity to drive away disagreeable fullness in the ear, and to prevent the sound of his voice from entering it, as well as to increase his hearing. He replied that I was right, stating that he frequently, perhaps fifty to a hundred times during the day, was compelled by disagreeable sensations, to do so especially after taking cold in the head. Not long after I had frequent opportunities of examining his ear, and found that, previous to the abstraction of air from the cavity, the membrana tympani was slightly concave; the "light spot" and whole surface was dull; but when he made a quick inhaling effort, with mouth and nostrils closed, the dullness disappeared, the concavity was increased, and with this change, the sensation of fullness in the ear, the muffled, muffled sound of his voice, was removed, and at the same instant he experienced an increase in hearing outside sounds.

\* Toynece on Diseases of the Ear, page 192.



**156. CASE III.**—The next case of this class that came under my observation was (Jan. 8th, 1869,) Mrs. Mary E. Truman, aged twenty-eight years. Sent to me by Dr. M. A. Pallen. Hearing in the left ear had been defective for about five years; in the right, one year. She applied for treatment on account of the direct transmission of her voice through the left Eustachian tube to the ear. This could be considerably increased by yawning, at the same time breathing through the nostrils. While doing so, with the aid of the aural auscultating tube introduced into this ear, the sound of her voice could be easily heard. All deep tones were much more distinct. The "ing" in pronouncing "morning" was very distinct.

On the 9th of January the Eustachian catheter was well introduced into the mouth of this tube. Using the aural auscultating tube as before, it was noticed that the sound of her voice was nearly shut off, but the flapping, purring sound of the catheter was very marked, seemingly right in my ear. After an inflation by this means, the Eustachian tube remained closed a little longer, after an inhaling effort similar to Dr. K.

After injecting warm water, having a little slippery elm dissolved in it, into the left nostril, with the head inclined to that side, the sound of her voice was shut out from her ear for several hours.

When the Eustachian tube was patent, so that, with the aid of the aural auscultating tube, her voice could be heard through it, the "cone of light" was diffused and dull in lustre, but instantly, on swallowing with the nostrils closed, it became smaller and brighter, proving conclusively an increase in the concavity of the membrana tympani by rarefaction of the air in the cavity, and closure of the Eustachian tube. At the same instant the peculiar way of hearing her voice, was shut off, and the hearing of external sounds increased.

**157. CASE IV.**—Rev. Dr. B. F. C., of this city, aged fifty years. In 1862 his left ear was injured by an unexpected discharge of a cannon near him. Examination of the membrana tympani, on the 15th of Nov. 1871, proved it to be very concave, and the "bright spot" quite small, showing that the Eustachian tube did not allow sufficient air to pass into the tympanic cavity. The pharyngo-nasal space was affected with chronic inflammation. He took a long course of treatment, with indifferent success.

On January 24th, 1872, he consulted me for a directly opposite condition of the Eustachian tube, that of patency—hearing his voice abnormally loud in his left ear. This was apparently occasioned by a severe cold in the head. His voice sounded to him as though it were right in his ear, and sounded double, as if some one were repeating his words just back of his left ear. This was so very annoying that he could not think with freedom while preaching. On one occasion



he was compelled to desist from preaching on account of it. Accompanying it was fullness in the ear and increased dullness in hearing.

With the aid of the aural auscultating tube, the peculiar sound of his voice could, very easily, be heard. The greatest contrast between any two sounds heard from this ear, was that of "a" and "ing"; the former could scarcely be heard, while the latter was remarkable for its distinctness.

Strong pressure on the tragus, closing the auditory meatus, decreased the tympanophony, but did not entirely check it. For the purpose of ascertaining whether or not it was the mere pressure that caused this decrease, I had him press equally as strong into the meatus end of the auscultating tube; this had no effect whatever on the tympanophony. I then placed a piece of sheet rubber over the end of the tube, and pressed as before, which produced the same effect as the pressure on the tragus but not to so marked a degree. These experiments were repeated several times with the same result.

Two drops of warm salt water dropped into the auditory meatus preparatory to the application of a constant current of electricity, for the treatment of the disease) had no apparent effect in checking the phenomenon; three drops more, decreased it a little. When the canal was about half full, there was still a little resonance on phonation; but when as full as it could hold, there was none at all.\* This experiment was not repeated. The electricity removed every symptom of patency for several days, and when it returned it was so greatly increased that I could not hear his voice at all from the ear.

158. CASE V.—Jan. 27th, 1872.—Miss Mollie King, of this city, aged 19 years. She had had perforation of both membrane tympana and otitis media in both ears, since childhood. The following are the symptoms of her tympanophony, in her own words:

"I have had breathing in my right ear many times during the winter, and up to the present time, each attack lasting an hour or more."

"At such times, I have but little matter in my ear, and feel as if something had moved away; then I hear the sound of my breathing. I always drive this away by syringing my ear with luke-warm water. It is such an insufferable feeling that I have to keep washing out my ear until it stops. As soon as the water stops going into my ear, I know the sounds will stay away."

Question.—What does the noise in your ear resemble?

Answer.—"It sounds like a very loud breathing in the head, striking the ear drum quite hard; and if I speak, it sounds as if I was

\* These two experiments, on this and the following case, were suggested by Prof. Dr. Brunner's article, in the *Arch. Opht. and Oto.*, Vol. II, No. 1, pp. 112, 1871.



in an empty room, and heard the echo of my voice. It is not the voice that comes from my mouth that hurts and sounds so loud in my ear, but that part of it that goes to my ear from my throat. The voice that comes from my mouth sounds last, and is like the echo in a room. I never speak loud at those times, because it hurts the ear drum and causes my head to ache very badly."

Ques.—What is the condition of your ear when this occurs?

Ans.—"It occurs at a time when I have a very bad cold in my ear and when it is not running; at the same time my nose is hot and dry. The breath, coming from my ear into my throat, is very offensive."

Ques.—Is your hearing more defective at such times?

Ans.—"No; I hear as well at any time; sometimes I think that I hear better."

Ques.—Have you ever tried to stop this unusual sound of your breathing, by closing your ear with your finger, or other means?

Ans.—"Oh, yes; but that does no good; it only keeps me from hearing other persons."

Ques.—Did it stop the noise a little, and make you feel a little better?

Ans.—"Not in the least [with emphasis]; nothing but something run into my ear would do any good. Sometimes, after washing my ear with water, the sounds would [after being away] soon begin to return, then I have wet cotton with glycerine and put this into it. If I felt it [the resonance] coming on, I would squeeze the cotton a little so that some of the glycerine would run farther into my ear, and at the same time I would hold my head toward my left shoulder; when the breathing sounds would stop."

159. This closes the history of the cases, from the observations of which I was led to believe, in fact to know, that the prevailing theories concerning the functions of the Eustachian tube were erroneous. The symptoms of these cases prove conclusively, that when the Eustachian tube was opened by a small quantity of mucus acting as a wedge, so that the air in the tympanic cavity became of the same density as the external air, —the identical condition that Toynbee, and others say is essential to good hearing— the exceeding disagreeable fullness of the ears and the diminution of the hearing was so marked, that it *precludes* the possibility of the healthy Eustachian tube being open, even for an instant, during deglutition, without occasioning the *same* phenomena. Each one of the



first three patients state positively, that *instantly* the tube opened, he experienced a sensation of fulness in the ears and a marked decrease in hearing; and on inspecting the ear by the speculum, a decrease of the concavity of the *membrana tympani* was observed, proving the correctness of my statement made in topic 151 (c), respecting the concavity of this organ. Each of these patients states that the *instant* the tube was closed, by the *absorption of air* from the tympanic cavity, the disagreeable fullness disappeared and the hearing increased; and with this marked improvement in function and sensation, inspection by the ear speculum showed increased concavity of the drum membrane; proving the accuracy of what I said in topic 151, (b), concerning the density of the air within the tympanic cavity.

The symptoms of the fourth patient, who had perforation of the *membrana tympani*, fully sustain the statement of the other patients as to the disagreeableness of the air passing to the ear through the Eustachian tube. With this patient, the patent tube did not decrease the hearing. Why? Because the abnormally open tube could not further increase the air density in its middle ear, it being already equal to that of the surrounding atmosphere, through the perforation in the drum membrane. This proves that patency of the Eustachian tube of itself is not a cause of deafness, but that defective hearing follows as a consequence of this condition of the tube which allows *too much* air to enter the middle ear and causes the drum membrane to fall outward, both by its own weight and its own contractility, so that it may leave its normal position, and draw with it the small bones of the ear and thus prevent due pressure on the fluid in the internal ear. Although the sound waves strike upon the *membrana tympani* in this fallen position, and are transmitted to the small bones, yet, if these do not press upon the perilymph in the internal ear, no impression is made upon the auditory nerve.

There are other conclusions that could be drawn from



the symptoms of these patients, but I reserve them for another place.

**160. THE SEVEN CONCLUSIONS.**—The following are the series of conclusions at which I arrived, from the observations made on the five patients, whose histories are given, and from observations made on other patients aided by experiments on healthy ears.

1st. That during deglutition, the Eustachian tube is not an open passage into the tympanum as conceived by Toynbee.

2nd. That the walls of the Eustachian tube are constantly in slight contact.

I did not at that time know of the small canal discovered by Rudinger. This explains just how the air can enter and still allow the walls to remain constantly in slight contact.

3rd. That the air continuously enters through the Eustachian tube into the tympanic cavity.

4th. That the air in the normal tympanic cavity is not of equal density with that of the surrounding atmosphere; the air in the tympanum being rarefied.

5th. That one of the functions of the Eustachian tube, and the principal one,\* is the maintenance of this inequality of air density.

6th. That the rarefied condition of the air in the tympanum is the cause of the uniform concavity of the membrana tympani.

7th. That a certain degree of uniform pressure on the fluid in the internal ear, by means of the membrana tympani and the small bones of the ear, is essential to normal hearing.

**161. ADDITIONAL FACTS, CORROBORATIVE OF WHAT I HAVE SAID, TAKEN FROM DESCRIPTIONS THAT OTHER PHYSICIANS HAVE GIVEN CONCERNING THE SYMPTOMS OF OTHER PATIENTS, WHO SUFFERED FROM PATENCY OF THE EUSTACHIAN TUBE.** I need not let so

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\*In the 5th Conclusion read before the St. Louis Medical Society, I said "perhaps" the principal one.



important a subject rest alone on the authority of my own observations. I can adduce an abundance of cases precisely similar to those just described, that were observed by gentlemen of high repute, whose views respecting the functions of the Eustachian tube are at variance with mine; but perfectly in accord with those of the profession. The symptoms that they observed in their patients, prove, positively, the correctness of every one of my conclusions.

**Cases of patency of the Eustachian tube that occurred in the practice of other physicians.** I will first present three cases mentioned by Mr. Toynbee. The close resemblance of the prominent symptoms of his cases to mine is manifest. They are found on page 155 of his valuable work on *Diseases of the Ear*, under the head of "Relaxation of the Fibrous Laminae of the Membrana Tympani." He states that the causes are 1st, the effects of an ordinary cold, producing hypertrophy of the mucous layer; 2nd, inflammation of the fibrous layers. From either of these causes, the membrana tympani may lose its natural degree of resiliency and become flaccid, so as to fall inwards, and approach more nearly the promontory than is natural; a change which results in great dullness of hearing." He says that this dullness may, however, be temporarily relieved by "either snuffling with the nostrils closed," or "by forcibly and rapidly inhaling air through the nose." It is readily seen that from his method of relief, his cases were those suffering from abnormally open Eustachian tubes, for both the act of swallowing with the nostrils closed and that of inhaling air through the nose abstracts air from the middle ear.

3. His description of the state of the drum membrane of his first case is strong proof that the concavity was at a minimum; for he states that "the membrana tympani was found to be opaque; its bright spot elongated," showing a comparatively flat condition of the membrane. Positive proof of the patency of the Eustachian tube of



this individual, is, that the act of deglutition, performed with the nostrils closed relieved his disability, proving the accuracy of my 4th conclusion: the improvement continuing until the same act was performed with the nostrils open, (substantiating my 1st conclusion) which, with this patient, again gave rise to patency and its consequences.

(b). In the second case the "bright spot (of the membrane is) much larger than natural," which demonstrates that its concavity was decreased as much as the traction of the tensor tympani would allow it. "The rumbling sensation and the deafness are both temporarily relieved by suddenly and forcibly drawing in the breath through the nostrils."

Here the hearing was increased by closing the patient's Eustachian tube, at the same time abstracting air from the middle ear in a manner exactly similar to some of my cases (Dr. K.). He adds, "The patient has thus acquired the habit of incessantly snuffing the air, which is exceedingly unpleasant to himself and to every one around him." It was not a habit, but an act necessary to free himself of the disagreeable effect of an air density in the tympanum, that was equal with the surrounding atmosphere.

(c). In the history of his third case he has not been as explicit in the description of what he saw, or the method adopted by the patient for relief. But taking into consideration its connection with the other cases, and the fact of his using the same expression concerning the method employed for obtaining temporary relief, there is evidence enough to consider it similar in character. In the latter part of the history of this patient, he states, "the hearing remained much better, except during attacks of cold, when the old habit of clearing the ears, by forcing air through them, was had recourse to." It is evident that the habit of "clearing the ears" is similar to those of his other cases, notwith-



said, he calls it forcing air into them, which he says they did by closing the nostrils and swallowing.

162. This examination of the history of his cases really proves that he was mistaken in the direction the drum membrane took, when he instructed them to perform the act of deglutition with their nostrils closed, as this abstracts air and causes it to rise and approach the tympanum, instead of, as he supposed, forcing it outward and away from it; consequently, he was in error as to the cause of the disability in their hearing, showing that his theory—namely, that for normal hearing, the air density in the middle ear must be always equal to that of the surrounding atmosphere, is not consistent with well known facts.

Let us compare the symptoms, as observed in his cases, with his theory now accepted by every one:

The patient finds that every time the Eustachian tube is open, his hearing is decreased (1st conclusion).

He says that the Eustachian tube must be opened at each act of deglutition, for perfect hearing.

They are compelled to extract air (4th conclusion) for the purpose of increasing the concavity of their membrana tympana (6th and 7th conclusions), to increase their hearing, and also for the purpose of closing the Eustachian tube (2nd conclusion).

He says that the air in the tympanic cavity must "be always of the same density as the outer air."

163. Again, while the Eustachian tube remained normally closed (2nd conclusion), the increased concavity of the membrana tympani remained stationary (5th conclusion). Now, as this condition of the tube and membrane is continuous upon the permanent recovery of the patient, and as there is a process of air exhaustion or absorption going on continually in the middle ear; therefore, if the hearing remains uniform, it proves the uniform absorption of air into the middle ear (3d conclusion).

164. While it is evident that the traction of the



tensor tympani upon the manubrium accounts, in some measure, for the concavity of the membrana tympani, the facts observed in those cases prove that it did not maintain its *uniform* concavity, especially that portion of it which reflects the "light spot"; and that this condition is maintained by the excess of outside air-pressure, that is, the rarefied condition of the air in the cavity. When there was no rarefaction of the air, the membrane assumed as flat a form as its attachments would allow it to take, that is to say, that the unassisted traction of the tensor tympani muscle maintains it in the same form that a cone, if pressed against it, would do. But the excess of outside air-pressure, in addition to this traction, maintains it in the condition that a ball would if substituted for the cone; so that a section of the membrane, passing through the *umbo*, or "light spot" would present a curved line, not an angle.

**165. Dr. Gustave Brunner's case of patency of the Eustachian tube.** The next case of this class is taken from the "Archives of Ophthalmology and Otology," Vol. II., No. 1, page 107, (1871), reported by Dr. Gustav Brunner, of Zurich, Switzerland.

This case is given by Dr. Brunner in support of his theory, that the *closed* Eustachian tube, assisted by bone conduction—not fluid in the middle ear as claimed by Dr. Joseph Gruber—is the cause of the increased resonance or autophony or tympanophony in his patient.

As I will attempt to prove by the symptoms of this case that it was an abnormally open condition of the Eustachian tube, instead of an abnormally closed condition, that caused the phenomena, I will be compelled to disagree, *in toto*, with his conclusions, while accepting the results of his ingenious experiments.

His case was that of a woman, "45 years old. Had become deaf after having catarrh the whole winter, but never before had any trouble with the ear. In April, 1870, sudden pain in right ear, without any distinct history of taking cold," \* \* \* "She does not complain of any particular pain, but a feeling of stoppage of the right



ear; particularly, however, that her own voice resounds very strongly in the right ear in such a manner that speaking is very disagreeable to her; even her own respirations sound so loud and sibilant as to be troublesome. She also hears every motion of the jaw with unusual distinctness." \* \* \* "By auscultation with the otoscope one perceives quite a difference between the right and left ear. On the right side the voice of the patient sounds uncommonly loud and clear, with a tremulous continuation of tone; speech, even in common conversation, as though one was speaking in a vaulted chamber or a long speaking tube, and, on raising the voice, the sound is red-doubled; in quiet breathing, sound through the otoscope is remarkably loud and sibilant." \* \* \* "I introduced the catheter on the right side and blew air in by means of the air bag, when I heard strong roaring or blowing upon auscultation, which made, in spite of its intensity, the impression of a distinct noise arising from the nose, or, at most from the mouth of the tubes.

"The air douche was without permanent influence upon the phenomena. I now made, in view of Gruber's assertion—although from the results of the examination of the membrana tympani the presence of liquid in the tympanic cavity was not at all probable—a small perforation into the right membrana tympani.

"The autophony was not altered by this proceeding, and no air passed from the opening, in spite of the strong and repeated douches of air through the catheter (the tube was, no doubt, still closed). As soon, however, as the air, after repeated efforts, passed through the membrana tympani with an audible hissing sound, the troublesome resonance, both subjective and objective, disappeared, as by magic, and did not return when I injected a weak solution of zinc by means of the catheter."

As soon as he blew out the wedge of mucus that kept the tube open, it closed; therefore, the sound could not pass through it. With his idea of the cause of the phenomena, the disappearance did certainly look like a magic performance; but a proper understanding of the situation of the tube, dispels the idea of magic, and brings the phenomena down to a physical cause.

The question may be asked why did not the wedge of mucus fill the whole caliber of the tube, and thus prevent the entrance of sound to the middle ear? The



answer is, that mucus is poured out only where the glands secrete it. *Mucous glands do not exist* in the portion of the tube that forms the capillary opening, as stated in 86, but only in the vertical portion, below the capillary passage, the portion that forms the sides or walls that are constantly in apposition.

**166.** Patency of the Eustachian tube is a complaint of adult age, the age in which all the mucous secretions of the head are very thick and tenaceous. Young persons have the same inflammation of the Eustachian tube, but with them, the secretion is thin in consistency, and is forced up to the tubular or capillary portion of the Eustachian canal, but as stated, the mucus of the adult will not flow upward, but remains where it is poured out; that is, in that portion of the tube *below* the capillary opening. Here the thick, tenaceous mucus, **acting as a wedge holds that part of the tube open that nature intended should be continuously closed**, thus allowing the free access of air and sound from the larynx, occasioning all the abnormal phenomena described.

Dr. Brunner continues:

"I remarked particularly that not the slightest secretion made its appearance through the membrana tympani. Now the air passed whizzing through with great ease by the patient simply blowing the nose, and the improvement continued until next morning. In the evening, however, the patient was no longer able to force any air through the membrana tympani.

"When I saw her two days afterward the opening was closed; no reaction had followed the paracentesis, but the group of troublesome symptoms were present as strongly as before. State of the membrana tympani same as in the beginning."

" \* \* \* \* This time the air douche availed nothing. Only after I had blown in some solution of zinc the resonance of the voice suddenly disappeared, and remained absent until the next morning. (To me this observation, which I subsequently repeated, is explained as follows: that after the moistening of the collapsed walls of the tube the stream of air finds admittance more easily.) Two days later the patient presented herself again. The autophony continued with



exalted violence. Repetition of the air douche was of no use, and even the injection of fluids at this time proved negative."

167. If this theory of the cause of the disappearance of the tympanophony is correct, would he not have been more successful had he introduced and retained a catheter in the Eustachian tube, as recommended by Dr. Jago, *to prove patency of this passage*?\* Is it not much more reasonable to suppose that the water occupied all of the free space in this small and narrow passage (as it would do in any opening of the same size and shape), and, while remaining there, acted as an obstruction to the passage of sound, in a manner precisely the same as it would have done, had it been injected into Dr. Brunner's aural auscultating tube, while he was examining the patient's ear with it? The following quotations plainly show that in this I am correct:

"The patient stated that the air began to pass into the ear, but was suddenly interrupted. I now pushed a bougie of about 1 mm. thickness through the catheter. At the middle of the tube it was arrested, and could not be carried any further; but the autophony disappeared. If I pulled the bougie back a little the symptoms reappeared, and disappeared again when the bougie was introduced. Thereupon, I took quite a thin bougie,  $\frac{1}{2}$  mm., which was also arrested at the spot mentioned, and found great resistance, but at last entered the cavity of the tympani; whereupon, the autophony ceased even with the stethoscope.

"I usually injected a solution of zinc sulphate (grs. iij,  $\frac{3}{4}$ ), and remarked particularly that the injected liquid never produced autophony; on the contrary it disappeared, as I observed above, sometimes not from the effect of the air douche but by blowing in a few drops of the liquid.†

"Violent sneezing would sometimes bring on autophony, as also deeply stooping, whilst continued gargling often caused it to disappear.† When the autophony is absent the patient feels much more comfortable and says she hears better, although with the watch no marked difference can be noticed."

\*Jago on the Eustachian Tube—British and Foreign Medical-Chirurgical Review, January and April 1867, page 181.

† Italicized by the Author.



168. Such an array of symptoms, all pointing plainly one way, namely, that she heard the sound of her own voice through an unusual avenue to her ear, is not to be found, not even in the history of Dr. Jago's own case of patency of the Eustachian tube, related by himself. Yet, Dr. Brunner repeats, on page 117:

"It appears to me most natural at present to seek the cause of its frequent alterations in a stoppage of the tubes." \* \* \* \* \*

\* \* "That such really existed is shown by the result of the auscultation, and by the fact that the solution of zinc injected through the catheter never, or seldom occasioned any burning in the ear."

I think that it is not necessary to devote much time to the contradiction of his conclusion; namely, that the auscultation demonstrated stoppage of the tube: for the quotations already given above, state that through the aural auscultating tube, introduced into her ear, "on the right side, the voice of the patient sounds uncommonly loud and hollow," \* \* \* "in quiet breathing, sounds remarkably loud and sibilant;" and the sound from the catheter gave "the impression of a distinct noise arising from the palate, or at most from the mouth of the tube." Even if he had desired to describe the symptoms of patency, as proved by these phenomena, he could not have used more descriptive language.

169. The history of this case will suggest, upon reflection, that the reason that the injection of the zinc solution did not reach the cavity of the tympanum, might not have been on account of closure of the Eustachian tube, but, on the contrary, because of its *being too open* while the membrana tympani was imperforate. I consider that his inability to successfully inject the solution into the tympanic cavity, is another fact that proves the correctness of my views; that is, that this case had an abnormally open Eustachian tube, so that "air could either enter or recede from the tympanum."

170. Evidently, if the tube had been long closed, there must have been rarefaction of the air in the tympanum and mastoid cells, from absorption by the mucous membrane; therefore, just as soon as equalization



of the air density took place on the opening of the tube by injection, the liquid must of necessity, have been drawn into the cavity by atmospheric pressure at the same moment, or even before the air entered it.

171. It is very difficult to force a liquid into a cavity connected with a long, narrow tube, similar to the Eustachian canal, because of the condensation of the air in the cavity at the further extremity of the tube. The best method by which a fluid can be made to enter such a passage with facility, is when the air within the cavity is rarified, as is found in long closed Eustachian tubes; the rarefaction of the air being occasioned by its absorption by the mucous membrane of the middle ear and mastoid cells. An injection into a tympanic cavity having a patent Eustachian tube and an imperforate membrana tympani is hardly possible, because the air already in the tympanum and the tube—which can not be condensed without causing great pain—has no avenue for escape, the tube being too small in caliber to allow the liquid to enter and the air to come out at the same time. But if there is a perforation of the membrana tympani, there will be no difficulty in injecting the solution into the tympanic cavity, for the air in the cavity can and will escape through this opening, as it did in this case after we had perforated the drum membrane.

172. He gives other reasons in support of the theory that the closed tube always accompanied this tympanophony; but the only one I need mention is found on page 118. Its ingenuity and seeming correctness called my attention to it.

He says: "It might seem strange that tympanophony did not appear during the introduction of the bougie, but we shall cease to wonder at this when we consider that the tube is not a round, but a square-shaped canal; the bougie cannot, therefore, fill up the whole cavity, but will act as a wedge, holding the walls asunder."

Keeping in mind the comparative dimensions of this collapsed tube-shaped passage and the bougie, I think that it is a little doubtful if the larger one would act as



a wedge, holding the walls, above it or below it, sufficiently apart for the sound of the voice to enter, without taking into consideration that, at the same time, there was a constriction—*which must have been membranous and nearly circular*—so great that the instrument could not be made to pass, and the one  $\frac{1}{2}$  mm. required pressure to overcome "great resistance." How could the sound pass through that part of the tube occupied by this membranous and circular constriction, while the larger bougie filled it to its utmost capacity? In fact the sound did not pass, for he says that the phenomenon disappeared while the bougie was pressing upon this constriction.

On page 115 he gives what must be taken by every otologist as positive evidence that there had been no closure of the Eustachian tube, but an *opposite* condition, viz: As the hearing increased "from 0 to 16 centimeters," he says, "the injection of the membrana tympani has disappeared, and it shows, instead of grayish cloudiness, *and some increase of concavity*\*—nothing particular," corroborating the 4th, 5th, 6th, and 7th Conclusions.

What would increase the concavity of this membrane? Facts and recognized authority answer, air absorption within the middle ear and mastoid cells, causing rarefaction. As air abstraction could not "increase the concavity" of the membrana tympani with an open Eustachian tube, it proves that the tube was closed. This must be admitted.

That a rarefied state of the air in the tympanic cavity is the normal condition is proved by the fact that increased hearing was concomitant with the increased concavity of the membrane and closure of the tube, again corroborative of the 4th and 7th conclusions.

173. On page 124 he gives his theory of the cause of these phenomena:

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\* Italicized by the Author.



"To return to the history of our patient, the reason why only her own voice and breathing, but not the sounds produced outside and in the air, showed a strikingly louder and changed tone, can only be that on the first instance, the source of sound lies in our own body, and that, besides the conduction through the outer air, the conduction through the solid parts exerts an influence.

"From this circumstance we must explain the augmented resonance of the voice. Taking it for granted that complete closure of the tubes is favorable to resonance in the drum, it will appear nevertheless strange that resonance appear only in that of others, and we are obliged to seek the conditions for this resonance in the action of the bones."

The effort in these two sentences is to prove that the tympanophony is propagated to the ear by the conductive property of the bones, assisted by complete closure of the tube. Indeed, he must consider this bone conduction as the greater cause, for he has admitted that he had too large a class of cases of obstructed tubes without tympanophony to place much stress upon this condition of the passage as a cause of these phenomena.

The property of conduction in any substance is not suddenly changeable, but in this case we are forced to say that it was arrested by the air douche, by a few drops of fluid injected into the Eustachian tube, by coughing, by the large bougie that could not (according to his opinion) open the tube its entire length and by the smaller one that did, after considerable force, penetrate to the cavity of the tympanum, for all of them did prevent the sound of her voice going to her ear. But did they at the same time change the conductive property of the bones? Was not this property in them just the same, after the tympanophony had disappeared as before? He says: "By auscultation with the otoscope one perceives quite a difference between the right and left ear." No one can doubt the bone conduction being equal on both sides of the head.

174. On page 110 he relates two experiments, viz: "All these phenomena, subjective and objective, completely disappeared when the right ear was filled with water; the patient's



own voice then sounded as usual. This was also the case upon stopping the auditory canal by strongly compressing the tragus, but upon opening the auditory canal all the symptoms reappeared immediately."

I have made the same experiment on one of my patients, who had an imperforate membrana tympani (case iv., Rev. Dr. C.), with the same result. My explanation at the time and the facts seemed to bear me out - was that the column of water interfered with the vibrations of the membrane, and that this interference also occurred from the closure of the auditory canal by the condensed air pressing upon the imperforate membrane. It will be remembered that pressure, without means of condensing the air, did not thus effect the tympanophony. It will also be remembered that my patient observed that, when only a few drops of water were on the membrana tympani, it had but little effect, but, when filled, the tympanophony was gone. That the glycerine in the auditory canal of Miss K. (Case v.) should have the effect of stopping the increased tympanophony is not to be wondered at, because it passed directly through the perforated membrane into the Eustachian tube, thus closing the avenue for the sound to reach the ear, and requiring only two or three drops to do it. Strong pressure on the tragus had no influence whatever in diminishing the tympanophony in her case; but with the Rev. Dr. C. it had a modifying effect, but only when the canal was completely closed at the same time.

**175. Dr. Jago's history of his own case of patent Eustachian tube.** I will now make some quotations from an article written by Dr. Jas. Jago, of England. He has contributed two papers upon the subject of Patency of the Eustachian Tube to the British and Foreign Medico-Chirurgical Review, one in the January and the other in the April number, 1867.

I desire to use these quotations merely for the purpose of showing that I am not mistaken with respect to the character of Mr. Toynbee's, Dr. Brunner's and my cases,



usually; that they are, as asserted by me, those of abnormally open Eustachian tubes.

Dr. Jago was afflicted with this very annoying disease, and devoted much time to various experiments upon his ear, carefully noted the symptoms accompanying the disease and his experiments. There is no probability of his being mistaken when he says, that "It is now full thirteen years since I have understood the phenomena which an open Eustachian tube entails."

I will make the quotations from pp. 181, 182 and 183:

"But I am confident that any one who may provide himself with a tube open at both ends, just the size to pass through a nostril into the throat, and having projecting from it another with one of its ends capable for being passed into the Eustachian tube may, by thus introducing this into one of his tubes so that the air may pass freely from it to the drum,\* verify all my main experiments.

"In proof of this explanation I may adduce that, whenever I have been teased by the patency of the tube, I have always been able to shut it for some instants by an inspiratory movement with nose and mouth closed." \* [4th, 5th and 6th conclusions.]

"I will subjoin, that in explosive expirations, or in speaking, sneezing, hawking, sneezing, the pressure upon the membrana tympani is so great, and in the more violent, particularly involuntary kinds, threatens its integrity." \* \* \* \* "Every word spoken whilst the tube is open strikes the membrana tympani through it, and is thus heard many times louder upon this ear than upon the other. The Eustachian tube is minute as compared with the external auditory meatus, and can only admit a fraction of the volume of air that the latter admits. And therefore I do not mean to affirm that my experience of speaking into my own Eustachian tube is so stunning as what happens when another person speaks into the external one with his lips applied to the orifice. Yet, the illustration is so correct that, with a due allowance for the difference pointed out, it will convey a fair idea of the nature of the shock. Inspiratory sounds are also heard through the tube, but then only in a very faint manner."

On page 185 he relates a case similar to his own:

"About a dozen years ago a young woman, a member of a church choir, with only a very slight appearance of faucial relaxation, and a slightly elongated uvula, with no other sign of ill health than a slight anemic look, narrated symptoms essentially like those before us."

\*Illustrated by the Author.



\* \* \* \* "She had herself discovered and practiced the mode of reducing her bulging outward *membrana tympani* by trying to breathe with shut nose and mouth." [4th, 5th and 6th Conclusions.]

176. Additional facts, corroborative of what I have said, obtained from experiments on healthy ears, and found in the history of the patient's suffering from abnormally closed Eustachian tubes, due to acute inflammation of this passage.

It seems to me that any one interested enough to study this subject, must see that the Toynbee method of air-supply to the middle ear has been completely and repeatedly disproved; nevertheless, I will give a few more experiments on healthy ears, and observations on patients who were afflicted with closure of the Eustachian tube, due to acute inflammation, they not being old enough to have thick, muco-purulent secretion in the Eustachian tube; thereby adducing additional proofs that my views of the method of air supply to the tympanum is correct. I do this, both to show the rich resources I have at my command to corroborate my statements and because some have said that I have taken pathological Eustachian tubes, to show their normal action; a seemingly defective method of obtaining proof.

Since the publication of the article on the Eustachian tube, in the *ST. LOUIS MEDICAL AND SURGICAL JOURNAL* for July 20th, 1880, I have received quite a number of communications from physicians mostly from the East, all but one agreeing that I had proved the correctness of my Seven Conclusions. This one, rather unphilosophically, I think, stated that "It is not possible to prove the physiological function of an organ by its action while in an abnormal state." This criticism had been anticipated long ago.

That the pathological condition of the tubes in the case of those patients did *not* cause the phenomena described—aside from causing the patency—but that the patency alone *did* produce these phenomena, is proved by the fact that the *instant* the tubes were closed, even before the inflammation that caused the patency had subsided, the whole train of phenomena *as instantly* disappeared, and so continued while the tubes remained closed. The patient's inability to keep the



tubes permanently closed was the only reason why they applied to a patient. This effectually answers this adverse criticism.

**177. Rate of air absorption in the middle ear.** Although the rate of exhaustion of the air within the tympanic cavity and mastoid cells is not in dispute, it is nevertheless evident, that great importance must be attached to the rapidity of its disappearance, when the question of its supply to the tympanum is under consideration, as slow absorption requires only slow renewal, and rapid abstraction an equally rapid supply. For the purpose of placing this important function of the mucous membrane prominently before the mind, so that due importance may be attached to the method of supplying the absorption as it goes on, the following experiment is given, viz. :

**178. Measuring rapidity of air absorption in normal ears.**

**Experiment, No. 3** First find the utmost hearing distance from the watch, aided by the thread in measuring as before mentioned, in Experiments Nos. 1 and 2, **144** and **149**

SECOND, inflate the middle ear by the Valsalvian method, which forces, by a superabundant supply of air, the membrana tympani away from its normal position, dragging with it the ossicula auditus; and then immediately after inflation (refraining from deglutition), can note on the thread, the hearing distance. Continue taking these observations as to the hearing distance, every two minutes, for half an hour, all the time refraining from swallowing.

**179.** In the case of those persons whose Eustachian tube are normal, the inflation will decrease the hearing; as in those having an inflamed mucous membrane of the tube—which prevents the normal aeration of the middle ear—the hearing will be increased; while in those whose tubes will allow an excess of air, bordering on patency, the hearing will be decreased; but in either case the usual degree of hearing will soon return.



As this usual hearing could not return until the membrana tympani and ossicula auditus also returned to their usual positions, it is conclusive evidence that the superabundant air was abstracted by some means, and as deglutition did not take place, it must have been rapidly absorbed by the mucous membrane of the tympanic cavity and mastoid cells.

The following are the results of the trials of some friends who made this experiment for me:

"BELLEVILLE, ILL., March, 1872.—Found the distance that I could hear from the watch, which I covered; forced my breath into my ears, holding my nostrils closed. Refrained from swallowing. Heard less, but after waiting three minutes, heard at the first distance. I repeated this five times, with the same result. Mr. J.—"

"LEBANON, Mo., April, 1872.—I heard my watch 38 inches, then inflated my ears and heard it 28 inches, did not swallow, but in about two or three minutes (a long time when looking on the watch), I heard at 38 inches more distinctly than at the start. Why is this? Did not repeat it. W. E. L."

"Apr. 8th, 1872.—Commenced to listen at 9 A. M., and did not swallow, because my throat was very sore (occasioned by tonsilitis), until 11.30 A. M., and then only because I forgot. Commenced again at 1.30 P. M., and did not swallow for just three hours. My hearing was not very good when I commenced, but was equally good at any time I listened to the tick of the watch. H. Lee J.—"

"Jan. 1880.—I had no difficulty in making the experiment you desired, as my throat was very sore that I would not have swallowed for fifty dollars. (He suffered from a severe attack of acute tonsilitis). After having my throat sprayed at 7 A. M., I swallowed some milk; I did not swallow again until 3 P. M. of the same day. While I had severe pain in my left ear especially, my hearing in this ear was equally good before and after swallowing. My watch was heard at about 47 inches all the time. G.—"

Many others tried the same experiment, with the same result, that is, the usual hearing soon returned without the act of swallowing.

From the result of this experiment it is evident that air absorption from the tympanum is not a very slow process.

180. Other means of measuring air absorption



in the middle ears. We have other means of measuring the rapidity of the air absorption in this cavity. For this purpose I will relate, as briefly as is consistent with the importance of this subject, the observations made on the following young patients having Eustachian tubes closed by acute tubal catarrh. Had they been older they could have had patency of these tubes.

CASE VI.—Master Freddie H. aged about nine years. Examined on July 25th, 1866. Has suffered for three weeks from a severe cold of the head; throat very much affected; tonsils enlarged; breathes generally through the mouth. Supposed cause, prolonged bathing. Watch was heard in each ear, only on slight pressure; had considerable pain in the ears, and under them, toward the throat. The membranes of both ears very concave.

Attempted to inflate the tympanic cavities by the Politzer air pump, but failed; also failed on the 26th, but on the 28th was successful in opening the left tube, increasing the hearing in this ear to 2 inches (normal hearing distance of the watch about 96 inches). Aug. 3d. Hearing same as before treatment; was again unsuccessful in inflating either cavity. Aug. 4th.—His mother accompanied him, saying that his improved hearing of the previous Saturday did not stand until he got home. Was again unsuccessful in inflating the tympanic cavities.

Aug. 6th.—Opened both tubes by the air douche. The hearing was not examined before the treatment, but this inflation increased it in the right ear to 13 inches, in the left to 15 inches.

Aug. 7th.—Watch heard in both ears, only when nearly in contact. An unsuccessful air douche increased the hearing in right to 9 inches, and 11 inches. Three other inflations, to 14 inches on right side and 17 inches on left.

Aug. 9th.—Hearing in right ear 2½ inches, in left 4 inches. After inflation of middle ears by seven air douches, his hearing was increased to 10 inches in right, and 22 inches in left. This at about 10.30 A. M. He did not leave the office until 12 M., when, on examination, his hearing in right ear was reduced to 7 inches; left, 10 inches. Here was a loss of one and a half hours of 11 inches on the right side, and 12 inches on the left. Three more douches increased the hearing to 21½ inches and 27 inches respectively.

Aug. 10th.—There was a loss, in two hours, of 13 inches in right, and 1½ inches in left.

Aug. 11th.—Loss one and a half hours, 7 inches in right, and 18½ inches in left.



About the same degree of loss of hearing followed the next four treatments. This was also noticed by the father of the patient. The observation of this decrease of the hearing, so soon after the treatment, was first made by the mother (who was a teacher in one of our public schools); and it was her remarks about it, that caused me to note it.

**181. CASE VII.**—The next case in which I noticed a decreased degree of hearing after treatment, was my niece, Miss Lizzie I. R.—aged ten years. Her tonsils were very much enlarged. Hearing watch, with right ear, at contact, left 1 inch. The first inflation caused a very loud crack in her ears, frightening her very much. After this air douche she heard the watch with right ear 18 inches, left 32 inches. I tried for half an hour to persuade her to allow me to make another application of the air douche, but in vain. At the end of this time her hearing was reduced 11½ inches on the right side, and 19 inches on the left a loss during this half hour of 6½ inches in right, and 13 inches in left. Four days afterward—March 9th, 1867—her hearing on right side was contact, left, 1½ inches; after one air douche, right ear 17 inches left, 35 inches, after another right, 22 inches, left, 46 inches: I was then compelled, because of her very great dread of the effect of the noise caused by the inflation, to desist until 2 P. M., when her father came to my assistance. After she had been away nearly four hours her hearing had decreased to 12 inches on the right side, and 27 inches on left, a loss in this time of 10 inches on right side, and 19 inches on left.

The history of quite a number of similar cases could be added, demonstrating the rapidity of the absorption of air within the cavity of the tympanum. I have observed the hearing decreased in a like case, at the rate of from 13 inches in two hours to 16 inches in five minutes.

**182. Normal Hearing does not Depend on Deglutition.** If Toynbee's method of renewing air to the tympanum is correct, the experimenter that refrained from deglutition for 2 hours, must have been as deaf as either of those cases having tubal catarrh, in two hours after their treatment; for neither of them, according to Mr. Toynbee's theory, had any means of supplying air to the middle ear, in the place of that abstracted by the mucous membrane of the cavity. This should have caused an equal loss of equilibrium in the tympanic air density in both individuals; consequently, an equal loss of hearing; but the results prove that those having normal Eustachian



cases did not suffer loss of hearing, by reason of this so-called closure (3rd Conclusion); whereas, those cases having closed Eustachian tubes from disease did suffer serious loss of their hearing, even after a much shorter period of closure.

183. I will now make a few extracts from recognized authorities, with the view of bringing prominently before the mind, that it is a requisite of normal hearing that there should be a uniformity of air density in the tympanic cavity. And by the same authorities, and by experiments, in stated cases, show that there is a continual absorption of air in the cavity, and consequently, there must be a correspondingly uniform supply of air to it (3d Conclusion).

In the quotations, I wish the following points to be prominently in view: First, the assumed necessity of uniformity of air density in the cavity, in order to have normal hearing. Second, the necessity for a method of supply to maintain this uniformity. Therefore, the problem presented by them for solution is this: how can these two operative necessities be realized at the same time? Walze, Troeltsch, Roosa and others affirm that this is done by the action of certain muscles, opening the Eustachian tube all the way into the cavity during deglutition.

Teyubee, on page 192, in explaining his method of maintaining a uniform air density in the tympanum, says,

'As during the act of deglutition the tensor and levator palati contract, it is evident that whenever that act is performed, the Eustachian tube must be opened; and inasmuch as there is no apparatus by which the faucial orifice of the tube can be kept open, its lips fall together, and the orifice close as soon as the muscles cease to act. During the few moments that the faucial muscles are kept into play in the process of deglutition, air can either enter or leave from the tympanic cavity, and thus be always of the same density as the outer air. The reasons why the Eustachian tube is closed, during the momentary act of deglutition, are, first, that the tympanum may be generally a closed cavity, so that the sonorous vibrations reacting it may be concentrated upon the membrane of the fenestra ovalis, and, second, that, as especially pointed out by Dr. Jago, air may be prevented entering the tympanum from the fauces.'



On page 193 he gives his reason why a constant supply of air is necessary, saying:

"Although from the preceding remarks there can remain little doubt that the aurial orifice of the Eustachian tube is ordinarily closed, except during the act of deglutition, it is requisite to perfect hearing that the tube should be pervious, and that there should be a constant interchange of air in the cavity of the tympanum. If the Eustachian tube becomes impervious, the air that was in the tympanum at the time of the closure gradually disappears. It is not easy to decide whether it is absorbed, or whether by a kind of exosmose it passes through the membrana tympani; but whatever the cause, in a space of time varying in different cases from a few hours to a day or two, there is no doubt that the air in the tympanic cavity becomes partially exhausted. The effect is to produce an increased concavity in the external surface of the membrana tympani; a forcing inward of the chain of ossicles; pressure on the contents of the labyrinth; and a very serious diminution of the hearing power."

In the last edition of Troltsch on the Ear, page 180, the author, speaking of the Eustachian tube, says:

"It serves as an outlet for the secretion of the latter [the cavity], but especially as a passage for the renewal of the air in the middle ear. It is therefore a ventilation tube, by means of which the meeting of strata of air of equal density before and behind the drum is made possible, and the air in the tympanum maintained of the same degree of tension as that of the external atmosphere."

Again, on page 187: "But if this tube is at the same time to be a ventilation tube, by means of which a regular exchange of air between the pharynx and the cavity of the tympanum is brought about, it is necessary that its regular and frequent gaping or opening should take place only in this wise, that the strata of air, before and behind the membrana tympani, be kept of the same tension and density that is requisite for a normal vibratory capacity for the drum. Experience has shown that such an opening of the tube takes place with every act of deglutition."

184. My effort will be to demonstrate that this mode of replenishing air to the middle ear is not so "frequent" as to admit of its being as regular and as uniform as the abstraction of air from the cavity; that is to say, that the mucous membrane, in absorbing the air, is more constant and uniform than the act of deglutition.

It seems to me that it is superfluous to say that there is no possibility of there being a *uniform* supply of air by an irregular action of an organ; yet, according



to the quotations, the cavity must await this action for its air. Keeping in mind the constancy and rapidity of air absorption within the cavity, the longer the interval between the acts of deglutition that supply the air, the greater must be the variation between the internal and external air densities; therefore, good hearing, to accord with their views, must of necessity be of an intermittent character, synchronous with the act of deglutition. The following experiment will give additional proof that this is the case.

**185. Experiment No. 4.**—Let the experimenter place a watch on a thread attached to it and employed for the same purpose as mentioned in the First Experiment) as far from his ear as he can hear, marking this place on the thread by a knot; let him remain in this position without performing the act of deglutition for a number of hours. It will be found that his hearing the tick of the watch at the end of two hours will be just as acute as at the beginning of the trial.\*

\* I wish to say here that it is no easy task to sit several hours under prohibition to swallow, as the mere knowledge that one should not swallow intends the desire to do so.

The following are the reports of friends who attempted this experiment.

"Feb. 10th 1868.—I commenced to listen to the tick of father's watch at 3 o'clock but was compelled to swallow before the first three minutes passed; then I did not swallow for nearly twelve minutes, and again in five minutes. The next time I did not swallow for nearly an hour, but my throat [by this time] was very dry. I heard the watch at one time as well as another. Jennie E. D.—"

"Feb. 10th 1872.—Commenced to listen to the watch (covered) at 1 o'clock P. M., and swallowed only when I was compelled to, at 2.03, 2.26, 3.03, 3.16, 4.08, 4.25½, 4.44, and 5.37 o'clock P. M. I heard the watch equally well all the time, but my throat was a little sore when I was done. Belle R.—"

"March 21st, 1872.—I made the same experiment and swallowed at 1.08, 1.46, 2.20, 4.13, 5.12, 6.27, o'clock P. M. Distance just six feet I heard the watch this time just as well at one time as at another. My throat was not affected in the least. Belle R.—"

"Apr. 8th, 1872.—Commenced to listen at 9 A. M., and did not swallow, because my throat was very sore [occasioned by tonsillitis], until 11.30 A. M., and then only because I forgot. Commenced again at 1.30 P. M., and did not swallow for just three hours. My hearing was not very good when I commenced, but was equally good at any time I listened to the tick of the watch. H. Lee J.—"



"Jan. 1880.—I had no difficulty in making the experiment you desired, as my throat was very sore that I would not have swallowed without considerable inducement [He suffered from acute tonsillitis]. After having my throat sprayed at 9 A. M., I swallowed some milk; I did not swallow again until 3 P. M. of the same day. While I had severe pains in my left ear especially, my hearing in this ear was equally good before and after swallowing. My watch was heard at about 47 inches all the time. G.—"

"Dr Rumbold:—I placed the watch away from my ear a distance of five feet. I could just hear it. This was about 11 o'clock A. M., remained without swallowing 2 hrs. and 10 min. the hearing continued the same except when I commenced to swallow, then I lost the tick of the watch. I tried it again in the afternoon remained without, about 1 hr. and 20 min. the same result with the watch. I think I could have remained without swallowing, if I had not been trying to refrain from it. I tried it again the 28th (three days later) with the watch 5 ft. 3 in. away with the same result in swallowing, on the 28th I went 1 hour 42 minutes.

Yours Respectfully

George W. Oliver."

St. Louis, April 10th, 1886.

**186.** It is certain that in the intervals between the acts of swallowing there could not have been a uniform a supply of air to the tympanum if the act of deglutition was the only means of air supply: yet the hearing was just as acute after this long non performance of the act that Toynbee, Troltsch and others allow for the renewal of air to the cavity, as before the experiment, when they swallow as often as they desired.

**187.** The result of this experiment proves one of two things, viz.: Either that there was no rarefaction of air by absorption within these tympana, or that the supply of air to the cavities must have permeated the Eustachian tubes as continuously as was requisite to maintain the normal tympanic air density. As air absorption by the cavity is a known fact, it follows that my third conclusion, **160**, is correct.

**188.** Every case of that numerous class of deaf patients, caused by obstruction of the Eustachian Tubes, the result of chronic inflammation of the mucous membrane lining them, will bear the same evidence as this experiment, and the first one, viz.: that in the act of deglutition,



the Eustachian tube is not opened into the tympanum; yet the degree of hearing proved that the air slowly and continuously permeated the abnormally closed tubes into the middle ear, although not sufficiently rapid for good hearing. That there is air permeation in this condition of the tube, in all such cases of this class, must be allowed, because of the degree of hearing being much greater, and the concavity of the membrana tympani much less, than in patients suffering acute tubal catarrh, in which case either no air can enter, because of excess of secretion completely closing the Eustachian tube. If air does not enter the cavity at all, then the deafness will be as great as in any case of complete closure of the tube, and the concavity of the membrana tympani would also be as great for the length of time allowed for air absorption certainly long enough to accomplish this.

189. It is also just as evident that the air does not enter the tympanic cavity during deglutition; for if this opened the tube, what would hinder the hearing from being instantly increased, as is done by the inflation of the cavity by the air douche?

190. The fact that tympanic inflation is required to cure deafness, is proof that deglutition does not open the Eustachian tube. That the hearing is increased by the inflation, I take it, is positive evidence that the Eustachian tube was not opened into the cavity at the act of deglutition. It may be claimed that the action of the tensor and levator palati muscles in those cases, does, at least, give some opportunity for air to enter the cavity, but is not sufficient on account of the thickening of the mucous membrane of the tube. Then relief for all such cases is constantly at hand; for, is it not evident that frequent deglutition would be the remedy, thus allowing more air to enter the cavity; and making the air douche a needless operation; while continual swallowing would increase the hearing, until the one-sided pressure on the membrana tympani was neutralized, and its normal position attained? As this is not the



case, it also proves the correctness of conclusions Nos 2, 3 and 4 (160).

**191.** The following experiment will not only corroborate the views here expressed, concerning air permeation through the normally closed Eustachian tube, but will also show, more demonstratively than any experiment given, that air can enter the tympanum without the aid of deglutition, even more rapidly than is required; thus showing, that there is no necessity for any action of the tensor and levator palati muscles to open this passage to the middle ear for the renewal of air.

**Experiments No. 5.** First find the utmost hearing distance from the watch, with the aid of the thread, as before stated, and note this. Second, close the nostrils with the thumb and forefinger, swallow several times, thus abstracting the air from the middle ear, as to decrease the hearing as much as possible. Immediately again find the hearing distance from the watch, and note it on the thread. Continue every five minutes to make observations of hearing distance, for a period of half an hour, all the time refrain from deglutition. It will be found that the hearing distance from the watch will continuously increase, although there has been no action to open the Eustachian tubes.

The following shows the results of this experiment made by some of my friends:

"Collinsville, Ill., April 24th 1872.—Found the normal hearing distance (watch covered) at length of this (shorter) string (48 inches). A. M., swallowed with nose closed and heard at first loop (38½ inches) at 9.04 at original distance: Swallowed and heard at same. Repeated several times. Rev. E. A. H.—"

"St. Louis, April 24th 1872.—First found distance (64½ inches) that I heard the watch, then I cut the cord, closed my nose and swallowed.

At 12:45 P. M.,	and heard at 1st knot	(48½ inches.)	
At 12:50 " "	" 2d "	(60½ "	
At 12:52 " "	" "	full length (64½ "	
2nd trial.—At 8:35 P. M.,	heard at 1st knot	(49½ "	
At 8:40 " "	" 2d "	(54½ "	
At 8:45 " "	" 3d "	(61½ "	
At 8:50 " "	" 4th "	(62½ "	
At 8:55 " "	" 5th "	(67 "	
At 8:57 " "	" same as at the start	(69½ "	

AMELIA F.

Teacher, Public Schools.



192. Evidently, the cause of this increase of hearing distance from the watch, under these circumstances, was due to the tympanum being again replenished with air, so as to allow the membrana tympani to return to its normal position. But how did this air get into the cavity? by what avenue? I take it that this is as conclusive evidence as could be required to prove air permeation through the normally closed Eustachian tube, again proving the correctness of the 3d. Conclusion.

193. The third experiment, and the observations thereon Cases VI, and VII., prove that even if the act of opening the Eustachian tube was performed *every minute during life*, it would not be sufficiently frequent to maintain that uniformity of air density in the cavity, requisite to perfectly uniform hearing. Continuous air absorption necessitates a continuous renewal. **EITHER we must deny that there is a continuous abstraction, or we must admit that there is a continuous supply.** The alternative is physically unavoidable.

194. Again, I deem it self-evident that a uniform tympanic air density implies that there must be a uniform action of the Eustachian tube; therefore, this passage must be uniformly open, or uniformly closed. It is possible that it can be closed the greater part of the time, opening only at accidental intervals, and that there could be at the same time a uniform air density in the tympanic cavity, while air absorption is continuous. But, if the walls of the Eustachian tube are constantly in contact, or only during the interval between the acts of ventilation, in what condition will the air that remains in the cavity be in respect to its density, as compared with that on the out-side? Most certainly it will soon be in a rarefied condition (4th. Conclusion), unless it can as freely and continually enter the cavity as if it had an open tube to admit it.

195. Even if the "Toynbee method" of tympanic ventilation was correct, during much the greater portion of the time, the air in the cavity must be of variable



density, and in a rarefied condition, as absorption is rapid enough to produce these effects upon it, and deglutition is not sufficiently frequent to prevent them. From this it appears that there is a necessity for a patency of Eustachian tube, that is, if the normal air density in the middle ear must, as asserted by Toynbee, Troeltsch and others, be maintained equal to that of the surrounding atmosphere. But so far from this being true, there is, on the contrary, a physical necessity for a rarefied condition of the air in the middle ear, even if the Eustachian tube was only closed for a short period of time. This rarefaction is required to allow the oscillations of the membrana tympani to move with greater freedom, and to prevent undue condensation of air in the tympanum, by the vibrations of the membrane, occasioned by the waves of sound.

#### RESUME.

**196.** The First Conclusion.—“That during deglutition the Eustachian tube is not an open passage into the tympanum”—has been sustained by the fact that patients that recovered from the impairment of their hearing—occasioned by patulency of their Eustachian tubes—showed an increase of the curvature of their membrana tympani, as compared with the curvature before recovery. We have seen that after their hearing has been permanently increased, deglutition did not cause their membrana tympani to become less concave, as it did before their recovery. Now, as we know that they increased the concavity of the drum membrane by abstracting air from the middle ear, and as the closure of the tube was necessary to maintain this concavity; it is evident that, if the act of deglutition opens the tube, the curvature present when the tubes are closed, would instantly disappear or become less marked, and thus give rise to the well-known phenomena of patency, as it did in Mr. Toynbee's first case, and my second.

My First Experiment (also Mr. Toynbee's first, page 190,) demonstrates that the Eustachian tube is not completely opened during deglutition, but only so far as to make it possible for the natural resiliency of the membrana tympani, assisted by the traction of the tensor tympani, to force out sufficient quantity of the superabundant air, which is the cause of the prominent symptoms that follow the filling of the middle ear by the Valsalvian method. But the act of deglutition still leaves too much air in the cavity for the membrane to resume its normal position, and the usual hearing to return; as proved by



first measurement. The experimenter is forced to wait a short time for the mucous membrane of the tympanum and the mastoid cells to absorb the remaining excess of air, before the usual hearing returns. When the air in the cavity has been sufficiently rarefied by absorption, the usual degree of hearing is restored.

**197.** Every case, whose hearing is limited on account of chronic inflammation of the mucous membrane of the Eustachian tube, will furnish the same evidence. If deglutition opens the Eustachian tubes, does it not increase the hearing as instantly as does the Politzer air douche? That persons of defective hearing, resulting from chronic inflammation of the tubes, requires this inflation to increase their hearing is the strongest proof that air does not enter the tympanic cavity from the action of tensor and levator palati, or any other muscles. In these same patients inflate their middle ears by the Valsalvian method, the act of swallowing, as with other patients, relieves the middle ear of only a part of the excess of air. It cannot be admitted that the action of these muscles allow any air to enter the middle ear. If such were the case, then frequent acts of deglutition would make the Politzer air douche needless, and frequent deglutitions would increase the hearing, until the one sided pressure on the membrana tympani was neutralized, and its normal position resumed. Nor would it be correct to assert that their middle ears did not receive any air, as this would cause them to be as deaf as the cases afflicted with acute catarrch. See cases VI and VII, page 143.

**198. The Second Conclusion.**—"That the walls of the Eustachian tube are constantly in slight contact,"\* is substantiated by the uniform constancy of the concavity of the membrana tympani in cases of patency of the Eustachian tube after successful treatment. It is evident that the increased concavity of the membrana tympani is concomitant with the increased hearing, and that the increased hearing was caused solely by air abstraction, which could not have occurred with a patulous tube. The continuance of the increased concavity proves a constantly limited opportunity for the air to pass through the Eustachian passage.

**199. The Third Conclusion.**—"That the air continuously permeates the Eustachian tube into the tympanum, thus maintaining a uniform air density,"—is proved by the continuance of uniform hearing in every normal ear. It is admitted that there is a continuous absorption of air in the tympanum. This must be renewed. It follows therefore that the supply must be, and is, as uniform as is the absorption;

\* I do not mean that the Eustachian tube in its entire portion is in slight contact; the upper part is so constructed that it forms a capillary opening—the lower portion of the tube, and the capillary portion.



but if the supply is infrequent or irregular, the shock of its entrance would suddenly affect the location of the *membrana tympani*, and consequently, the acuteness of the hearing also. Therefore, this mode of renewing air to the middle ear would occasion an irregularity in hearing, which is not in accordance with the fact of our observations.

**200.** That the air does permeate the Eustachian tube, is shown by the Fourth Experiment—that of refraining from deglutition for two hours, without affecting the acuteness of hearing in the least degree. Whence did this experimenter receive a uniform supply of air to maintain his uniform hearing? If we will compare this result with the facts observed in Cases VI and VII (that had abnormally closed Eustachian tubes because of acute tubal catarrh, and whose loss of hearing, one and a half hours after inflation of middle ear, were 12" and 18" respectively), we will find another evidence of the truth of this conclusion. It is apparent that the Eustachian tubes of the experimenters—in the Fourth Experiment—and those of the patients just mentioned, were what is usually understood as closed, consequently, they were equally circumstanced as to their opportunity for renewing the air in their middle ears. But the results proved that the experimenters having normal tubes, did not have their hearing affected in the least by this long so-called closure, while those having closed tubes from disease, were seriously affected in their hearing after a much shorter lapse of time.

**201.** That the air can permeate the Eustachian tube even faster than is necessary for the normal supply of the tympanum, is proved by the Fifth Experiment; namely that of abstracting air from the middle ear by performing the act of swallowing while the nostrils are closed; then refraining from swallowing during the experiment, thus decreasing the hearing. It was found that the hearing returned to its usual degree of acuteness in a few moments. There can be no doubt, of the fact that the cause of this increase in hearing, under these circumstances, was due to the tympanic cavity being again replenished with the normal amount of air, even more rapidly than was requisite for the normal supply to this cavity.

**202** With the normal ear, hearing depends upon the reception of the sound waves by the *membrana tympani*, and their transmission, by the *ossicula auditus* and the liquid in the internal ear, to the auditory nerve. To allow a uniform transmission to the auditory nerve, the *membrana tympani* must have a uniform degree of tension. The relation between the tension of this membrane and its normal vibratory capacity is as much governed by physical laws, as is that of the tension of a piano string in the production of a uniform tone, or of the convexity of a lens as respects its uniform focal distance. Tension of the piano wire and convexity of the lense are no



more necessary in their respective cases, than is the curvature of the drum membrane necessary to perfect hearing. Yet we are asked to believe that this indispensable and uniform condition of the drum membrane can be maintained by a mechanism acting irregularly, the act of deglutition.

**203.** A continuous air abstraction necessitates a continuous air renewal; Either we must check the continuous exhaustion or allow a continuous supply. The alternative is physically unavoidable.

**204.** To maintain this uniform tension, it is essential that the air in contact with the internal surface of the membrane shall bear a constantly uniform relation, as to density, to that on its external surface, since every slight variation of the internal air density immediately affects the position, and consequently the tension, of this very drum membrane. It follows therefore that there must be one uniform tension of the Eustachian tube, or this imperative constancy of air density in the cavity, and tension of the membrana tympani cannot be constantly maintained.

**205. The Fourth Conclusion.**—"That the air in the normal tympanic cavity is not of equal density with that on the outside of the air in the tympanum being rarefied",—is proved by the fact that there is increased concavity of the membrana tympani in those patients affected with patency of the Eustachian passage whose hearing was improved by swallowing while their nostrils were closed. We have seen that an increase of curvature of the drum-head did not take place while the air densities on both sides of the membrane were equal, and that the act—deglutition—which the patients performed for the relief of their disability of hearing, abstracted air from the cavity, thus causing the membrane to curve inward, and thereby increasing their hearing. The co-existence of these facts demonstrates that the air in a normal middle ear is in a rarefied condition.

**206. The Fifth Conclusion.**—"That one of the functions of the Eustachian tube is the maintenance of this inequality of air density",—is sustained by the fact of the necessity of an increased concavity of the membrana tympani, in cases suffering from abnormally patent Eustachian tubes, in order to increase hearing. It is evident that the rarefaction of air in the middle ear, that sustains this concavity, must be maintained by a graduated and uniform entrance of fresh air into the tympanum.

**207. The Sixth Conclusion.**—"That the rarefied condition of the air in the tympanum is the cause of the uniform concavity of the membrana tympani",—is substantiated by the observations made as regards the methods that patients, who are afflicted with abnormally patent Eustachian tubes, take to reduce their flat membrane tympani to a more inwardly concave condition, i. e. making an inspiratory ef-



fort, or performing the act of deglutition with their nostrils closed. By so doing they increase their hearing.

**208. The Seventh Conclusion.**—"That a certain degree of uniform pressure on the fluid in the internal ear, by means of the membrana tympani and the small bones of the ear, is essential to normal hearing,"—is sustained by the fact that inward pressure of the drum membranes of those patients who recovered from patency of the Eustachian tube, increased their hearing; and that the outward movement of the membranes decreased their hearing. This conclusion is also sustained by a fact, well known by every aurist of even limited experience, viz: that the artificial membrana tympani—of what ever form—must make slight pressure on one of the ossicula, to have the least effect in increasing the hearing.

## CHAPTER VII.

### PRACTICAL PHYSIOLOGY OF THE MEMBRANA TYMPANI; MIDDLE EARS; MASTOID CELLS, AND THE INTERNAL AND EXTERNAL EARS.

**209. The function of the membrana tympani** is to receive the impression of sound and transmit them to the ossicula auditus. Its upper border is 6" nearer the outer portion of the ear than the lower border, so that its outer surface hangs over the lower wall or floor of the auditory canal; and, as the surface of the membrane is in the form of a curve, it proves that the air in the tympanic cavity is continually in a rarefied condition.

**210.** If this membrane is punctured, when the Eustachian tube is in a healthy condition, a certain degree of deafness is instantly produced, but this is not owing to any loss of the membrana tympani, as none of its substance is removed, but even if quite a large portion of its substance be removed, the hearing will not be proportionately decreased; in fact, the decreased in hearing is not greater than the effect caused by a small puncture,



thus showing that the loss of hearing is due to the introduction of an abnormal quantity of air in the middle ear, which, in turn, allowed the membrana tympani to fall outward, and drag with it the small bones of the ear, so that the impression of sounds made on the membrana tympani is not transmitted to the internal ear.

During the building of the Eads bridge over the Mississippi at this city Mr. Guernsey, a merchant of this city, made an experimental trip over the caisson upon which the east pier was being built. The result was a rupture of his left membrana tympani, and a consequent partial disease of his hearing—which had been normal—to 18. In recovery, which took place in about a week or so, his hearing was normal, as tested by the same watch.

In a few days afterward I had another patient—Mr. O. Broadbeck, of this city—who had his left membrana tympani pierced by a thorn, while he was going through some low underbrush. The puncture was a mere pin's point, and was only visible by the red spot made by the passage of the tip of the thorn. His hearing also was reduced to 18, but in a few days—less than a week—he heard the watch at 96 feet distant.

In the case of the first patient the membrane was ruptured so that a shaped opening was visible, with the point upward, and leaning to the outside. Both of these cases were seen by Dr. H. Judd and also by Dr. J. T. Hodgen.

The effect of puncturing the membrana tympani, when there exists an abnormal condition of the Eustachian tube, will be further discussed in another topic.

**211. The light spot, or the umbo,** which is invariably seen in every ear with a healthy Eustachian tube, is an important indicator of the condition of the Eustachian tube. It should always be seen at an angle of 45° toward the lower extremity of the manubrium. The membrane surrounding the umbo should always be of a pearly white color, similar to the sclerotic coat of the eye and the vocal cords, with a faint shade of pink. The reason why the light spot is located at the place described, has been given in topic 93.

**212. The function of the middle ear or tympanic cavity** is to provide space for the movements of the membrana tympani, the membrana rotunda, and the ossicula



auditus, and to assist, by its mucous membrane, in the absorption of air that passes through the Eustachian tube, and thus maintain a uniform rarefaction of air in this cavity, and a uniform concavity of the membrana tympani, all of which is, as has been already shown in topic 207, essential to good hearing.

**213. The function of the mastoid cells.** Mr. Toynbee, in his work on the Ear, 1868, page 300, says:

"As regards their functions, the mastoid cells may be considered merely in the light of an appendage to the tympanic cavity; but their conformation and intimate relations with the lateral sinus render a special study of their diseases necessary, previous to entering on which it is, however, important thoroughly to understand their anatomical relations."

It is thus seen that Toynbee has no use for the cells, and would have had less practice were they entirely absent, consequently the patient would be better off without them. Troeltsch, 1869, page 336, says;

"It is a generally accepted opinion that the purpose of these air cells, this porous structure, is to give this firm support of the soft parts a certain lightness. But there must be some further purpose than this. The air cells of the mastoid process increase the quantity of air in the ear, which is set in motion by means of the acoustic vibrations. They are—with every circumscribed fixed body, and every circumscribed quantity of air in the vicinity of the labyrinth—to be compared to a resonator, or sounding board."

Dr. Peter Allen, of London, 1871, on page 161, of his work on the Ear, says:

"With regard to *function*, the mastoid cells may be considered as an amplification of the tympanum, or an appendage to that cavity. It seems to be an accepted opinion that this porous, light, yet firm and stable cellular structure acts as a sort of reservoir for air to the drum, with which the cells freely communicate. Being placed immediately opposite to the entrance of the Eustachian tube, air easily passes into the mastoid cells, and is set in motion by acoustic vibrations impinging upon the membrana tympani. And when that membrane is extensively perforated, or lost through disease, the air contained in this amalgamated cavity is influenced greatly by the sonorous impulses from without. By bearing the last-mentioned circumstances in mind, you will understand how an excellent degree of hearing may be attained, even under such deficiency, when the little plug of cotton wool (Years-



ley's artificial tympanum) is inserted against the ossicles, or sometimes against the stapes, if that be the only one remaining."

Much the greater number of aurists fully described the mastoid cells, but do not give a line as to their function. Judging from the views of the three above quoted, the patient would not be the loser were there no such cavities in the head. Allen's theory, which he has borrowed from Troeltsch without credit, is not consistent with good reasoning; for although the "cotton artificial tympanum" increased the hearing, it did so only when it made slight pressure on one of the small bones of the ear; and would have had this effect even if the mastoid cells were entirely absent; or, were on the other hand, a pint in capacity. That it was necessary to have the ball of cotton push the ossicles slightly inward, only shows that the normal condition of the liquid in the internal ear is that of slight pressure, as stated in my 7th. Conclusion, topic 108.

The fact that the openings between the middle ear and the mastoid cells are situated so high that they cannot be used as an avenue for drainage, any more than can the Eustachian tube be made an avenue for the same purpose, shows that their functions were not understood by those who stated that these openings are avenues for drainage of fluid from these cavities. Besides this, it is a well known fact that the healthy mucous membrane never secretes more mucus than is required to moisten its surface. Now, what is there to be drained off? Is any one so short sighted as to say that these openings were made in anticipation of a diseased condition of these cavities? Such a view is equalled only by the absurd suggestion, that the function of the uvula is to conduct the secretions from the pharyngo-nasal cavity to the tongue, and thus prevent them from dropping into the larynx!

214. When we remember that the patient who is afflicted with a patent Eustachian tube has defective hearing, which is owing solely to the fact that the air in the middle ear is equal in density to the surrounding atmos-



es of cotton fibers, etc., are seen in the gration.

liber of the auditory meatus may be pping the lower jaw. If any one will dely and thrust his little fingers as deep o both auditory meatus and then close nes, he will be convinced that opening , as every one does who listens intently, er of the meatus. The auditory meatus eceive more sound than when decreased ing the lower jaw.

In attentive listener opens his mouth on taken for granted that this act was sound to go up the Eustachian tube iment mentioned in topic 219, if made is tested by the watch, the mouth and d by twenty or thirty thicknesses of a owel, will demonstrate the correctness

## CHAPTER VIII.

### MUCCOUS MEMBRANE OF THE NOSE,

s membrane is one of the im- body. Upon it devolves func- ary to some of the phenomena of tself could not be maintained.

ed of an epithelial layer, a muc- a connective areolar tissue un- yer are found compound or follicles and villi containing n single loops, or in net-work. contains blood vessels — the



phere; and that, when the air in the middle ear is slightly rarefied so that it causes the membrane to recede and make slight pressure on the internal ear, the patient instantly improves in hearing; when we remember that the mastoid cells are so formed that their walls are amplified, and thus provide a large surface to be covered with mucous membrane; when we remember that all mucous membrane absorbs air; when we remember that the portion of the tensor tympani that is in the middle ear, as well as the stapedius muscle, are incased in hard bone, so as to prevent their enlargement, by contraction, from affecting the density of the air in the middle ear; when we remember that the membrana tympani and ossicula auditus will vibrate more freely in a rarefied air, than in an atmosphere which, if equal in density to the surrounding atmosphere, must necessarily be made more dense at every inward movement of the membrane, we can easily see that the functions of the mastoid cells are—**first**, to provide sufficient surface on which to place mucous membrane for the absorption of air, by which the proper rarefaction may constantly be preserved in the middle ear; and, **second**, to provide room for sufficient air, so that the condensation made by the inward movement of the drum head will not prevent its free motion.

**215. The function of the internal ear**, is, apparently, to receive the impressions from the ossicula auditus.

**216. The functions of the external ear** is to collect the sounds and conduct them to the membrana tympani.

**217. The function of the vibrissæ in the entrance of the auditory meatus** is to throw the superabundant cerumen out of the ear. This is done by the action of the jaw, while eating and speaking, causing the vibrissæ to move in such a way as to eject small balls of cerumen.

**218. The function of the cerumen** is to deter insects from entering the auditory meatus. It has a solvent property also. When examined the microscope, hairs, scales



of epithelium. pieces of cotton fibers, etc., are seen in the process of disintegration.

**219. The caliber of the auditory meatus may be enlarged by dropping the lower jaw.** If any one will open his mouth widely and thrust his little fingers as deep as possible into both auditory meatus and then close the jaw several times, he will be convinced that opening the mouth widely, as every one does who listens intently, enlarges the caliber of the meatus. The auditory meatus can in this way, receive more sound than when decreased in caliber by closing the lower jaw.

**220. When an attentive listener opens his mouth widely,** it has been taken for granted that this act was done to allow the sound to go up the Eustachian tube also. The experiment mentioned in topic 219, if made when the hearing is tested by the watch, the mouth and nose being covered by twenty or thirty thicknesses of a handkerchief or towel, will demonstrate the correctness of my assertion.

## CHAPTER VIII.

### FUNCTIONS OF THE MUCOUS MEMBRANE OF THE NOSE, THROAT AND EARS.

**221. The mucous membrane is one of the important organs of the body.** Upon it devolves functions that are so necessary to some of the phenomena of life that without it life itself could not be maintained.

This organ is composed of an epithelial layer, a mucous membrane proper and a connective areolar tissue underneath. In the epithelial layer are found compound or mucous glands, simple follicles and villi containing clumps of blood vessels in single loops, or in net-work. Mucous membrane proper contains blood vessels — the



coats of which are encircled by sympathetic nerves—sensory nerves, muscular fibers and rounded enclosed follicles. The functions of the compound and simple follicles are to maintain the surface of the mucous membrane in a moistened condition. The epithelial cells that compose the upper surface of the mucous membrane, contribute the same secretion, as also does each epithelial cell that composes the entire layer, as each cell acts as an independent secreting gland. It is seen therefore that the moistened condition of the mucous membrane is its normal condition. Please bear in mind that I said, the *moistened* condition; I did not say a wet condition, that is, a condition in which the secretions are so profuse as to flow from one portion of the surface to another.

If the quantity of the secretion on the membrane is sufficient to form even a very slight stream, then we would have a flow, or by using another word, which means the same thing, we would have a catarrh. It follows, therefore, that every mucous surface from which the secretions flow, even in the least quantity, has a catarrh of its surface. On the other hand, it is only when the mucous membrane is in a moistened state, and not in either a flowing or dry condition, that it is possible for it to perform completely, the functions that are essential to health.

**222. Some of the functions** of the mucous membrane vary according to the location of the organ covered by it.

**223. In the nasal and pharyngo-nasal passages,** the function is to warm and moisten the air that passes through them into the lungs. As long as these peculiar functions are not interfered with, pathological changes of a very marked character may occur, and the patient be unconscious of it. Even the special sense of smell may be so completely obtunded, by inflammatory action, as to cause the patient to be unable to name even the week or month in which he lost the ability to recognize odors of more or less pungency.

**224. In the pharynx,** the mucous membrane se-



cretes a sufficient amount of mucus, to lubricate the bolus of food as it passes on its way to the oesophagus. If this function is not interfered with, the patient will be unconscious of the presence of a proliferative pharyngitis, the favorite target of almost every throat specialist and many general practitioners, who take trouble to look at the throat.

**225. In the larynx, trachea and bronchial tubes,** the mucous membrane has little other function to perform, than to maintain the surface of each organ in a moistened condition, but whenever there is a flow of mucus from any of these passages, then they are in a catarrhal condition. In the air vesicles of the lungs, in addition to the maintenance of the surface in a moistened condition, an additional function is to allow the entrance of oxygen into the blood, and the exit of carbonic acid gas from that fluid. When inflammatory action exists in this locality, a flow of excessive quantity of muco-purulent secretion is observed, the quantity being so great as to soon exhaust the patient.

**226. In the Eustachian tube,** the ciliated columnar epithelia, assisted by the peculiar formation of the canal, allow the gradual entrance of air into the middle ear, and thus maintain the normal rarefaction that is essential to normal hearing, and in the middle ears and mastoid cells, its function is to absorb the air that enters these cavities through the Eustachian tubes, as without this air absorption we could not have perfect hearing. See topics 138 to 208, on the functions of the Eustachian tube.

**227. In mentioning the uses of the Eustachian canal,** all physiologists maintain, that it is also a drainage tube to conduct away the secretion of the cavity of the middle ear. This is an assertion that no one can prove. Most of these authors have forgotten that they had already stated in the first part of their works, that healthy mucous membrane, secretes only that amount of mucus that is sufficient to keep the surface in a moistened condition. Besides this, the opening of the middle



ear into the Eustachian tube, is situated some distance above the floor of the tympanic cavity. In this respect, the opening of the middle ear to the Eustachian tube is similar to the opening of every mucus cavity of the head, such as the antrum of Highmore, the ethmoidal and sphenoidal cavities, the mastoidal cells, and the frontal sinuses, in each of which the opening is as far away from the floor of its cavity as it is possible for it to be, and at the same time to be open from the side. If the opening into the left antrum of Highmore was made for the purpose of allowing mucous secretion to enter the nose, then each one of us would have to hold the head so far to the right side, that the axis of the left auditory canal would be in a vertical line. To empty the right antrum, an opposite position would have to be assumed. To enable one to allow secretion to flow from the sphenoidal sinuses, would require the head to be placed so far forward and downward, that the forehead would be on a horizontal line. Even in this position these sinuses could not be entirely emptied. The same can be said of the ethmoidal cavities, and mastoidal cells, and frontal sinuses. The position that would be required to empty the left antrum of Highmore, would not empty any other cavity of the head; while the position that would allow most of the fluid in the ethmoidal sinuses to escape into the nasal cavities, would be such as to retain all of the secretions in most of the other sinuses.

**228. No exit for mucus required.** From this it is seen that in not one of these cavities is there a provision for the exit of mucus. Nature never intended that this secretion should be thrown off in the fluid form. It is all either to be evaporated or absorbed.

I think the reason why authors make the Eustachian tube an outlet for the middle ear, is because they find that this function is not inconsistent with the accepted theory of air entrance and exit. As long as they continue to hold to Toynbee's theory, that is, conceiving it to be a canal through which air can pass either way, so long will



they continue to consider it a drainage-tube also.

**229. The mucous membrane has various functions to perform.** In treating all of these passages and cavities, we must constantly keep in mind these varied functions and not interfere with them in the least if we expect to benefit the patient. In fact it would be as much of a fault of the surgeon to treat a fracture of the elbow, without bearing in mind the function of this joint, as it would be for the physician to treat one of these cavities without bearing in mind the functions of the membrane lining it. If, in our applications, we do anything to hinder this membrane from performing its functions, we fail, instead of ameliorating the patient's complaint, to aggravate it. This is the reason I do not use astringents or other irritants, as their effects on the mucous membrane are incompatible with the performance of its functions.

We have in the inflamed mucous membrane an organ that has lost its functions, or rather unable to perform these, in a proper manner. Our duty is to restore the functions as soon as possible, and every application that will not assist in its restoration will certainly end in increasing the trouble.

**230. Varied effects of inflammation.** We may have a continued inflammation resulting in great changes in some portions of the membrane, as in the pharynx, and it will be the cause of no inconvenience or disability to the patient. But if this same kind of inflammatory process takes place in some other organ, it may occasion a disability or the entire obliteration of some function. For instance, if the proliferation which we have seen in the throat occurs in the nasal passages, that are normally small in calibre, it would compel the patient to open his mouth to draw respiration, thus helping to induce the follicular pharyngitis spoken of. If it occurs in the Eustachian tubes, it would prevent the entrance of air into the middle



ear, and, as this inflammatory process is slow, would be the occasion of that slow loss of hearing which we see in very many ear patients. If it occurs in the middle ear, it would prevent the ossicula auditus from responding to the vibrations of the membranæ tympani, leaving the patient more or less deaf. From this it is seen, that a chronic inflammation may or may not be a cause of inconvenience, or disability, and whether it is or not, will depend entirely upon the organ in which it is located.



### SECTION III.

#### Practical Pathology of Catarrhal Diseases of the Nose, Throat and Ears.

The value of the study of the pathological conditions of the organ under consideration, is conceded by all who have had even a small experience in their treatment. I fully believe that most of the advancement that is to be made in the practice of the diseases affecting the Nose, Throat and Ears, is to come through successful investigations as to their pathological conditions. This study is not to be confined to a consideration of their morbid phenomena, merely, but to the essential nature of the diseased action. We daily meet with various conditions which we call disease. These conditions produce a change in the feelings of the sufferer that leads him to complain of being unwell. This subjective symptom may lead us to examine him, and see conditions that indicate a departure from health. Our knowledge of the nature of these changes will be valuable in their treatment and prevention.

The physiological action of the part affected must always be borne in mind, while studying its diseased condition. It is only by comparing the action in the two conditions that we arrive at a conclusion as to the degree of departure from health.



## CHAPTER IX.

### PRACTICAL PATHOLOGY OF THE DISEASES OF THE NASAL AND PHARYNGO-NASAL CHAMBERS. PHARYNX, SOFT PALATE, UVELA, TONSILS, EPIGLOTTIS AND LARYNX.

**231. NASAL AND PHARYNGO-NASAL CAVITIES:** The mucous membrane of these passages is the part first affected in all catarrhal diseases; consequently, its actual condition, in the various degrees of inflammation, will be first described.

The earliest manifestations of catarrhal inflammation are seen only in the infant. They consist of an increased flow of apparently normal mucus, and a slight increase of the color of the mucous membrane, soon followed by its becoming more or less thickened. From this stage, the morbid processes are characterized by conditions that are apparently very diverse. Sometimes the papillæ of the mucous membrane are temporarily enlarged, producing an irregularity of surface.

**232. Hyperæmia** is the first objective symptom of the catarrhal inflammation, and, according to the best authorities on this subject, is due to a dilation of the arteries, which is followed by a retardation of the blood-flows.\* The result of the retardation is a still greater dilation of the blood-vessels and capillaries, showing that the supply of blood to the parts is not diminished, nor necessarily increased; but it seems as if the walls of the vessels did not allow the blood to flow as freely as formerly, or, as if they retained the blood corpuscles, so that

\*Green's Pathology and Morbid Anatomy, p. 171, 1881.



they do not flow with the usual rapidity. With the diminished velocity of the blood-flow, other changes are apt to occur, but these changes vary according to the age of the inflammatory action and to the kind of mucous membrane affected; that is, whether it has or has not been previously frequently inflamed.

**233. With the mucous membrane of the infant,** the principal change in the blood-vessels is the transudation of serum. This transudes mainly from the capillaries and small veins, and not from the small arteries.

This serum differs from blood serum in being of lower specific gravity, because it contains more water. The greater the distension of the blood vessels, the more near-  
ly does this serum resemble the blood serum, and the greater is the amount of albumen which it contains. If the pressure on the walls of the blood vessels be great, as in acute catarrh, the serum may yield a fibrinous coagulum (Green).

**234. When the lymphatics are insufficient to remove** the transuded serum by absorption, **œdema is the result.** The passage of the serum occurs without rupture of the walls of the blood vessels; and even blood corpuscles may pass through the coats of the capillaries, which they really do, by passing through the stomata; these, Recklinghausen has shown to exist between the endothelial elements; although Cohnheim considers that the existence of stomata are not necessary to account for their passage (Hirsch).

**235. The passage of white blood corpuscles through the veins.** This was first described by Dr. W. Addison, in 1842, then by Dr. A. Waller, in 1846; but it was not until Cohnheim published his investigations on this subject, in 1867, that the medical world appreciated its importance. To Cohnheim, then, are we indebted for a description of the process, by which any one acquainted with the microscope, and gifted with "tact" in making microscopical investigations, can see the phenomena for himself.



**236.** As seen in **232**, **Hyperæmia**, that is, dilatation of the blood carriers, is the first evidence of inflammation; but it should be remembered that the **arteries** are the **first affected**, and after a short period of time, the veins, and then, lastly, the capillaries. This plainly indicates that the whole process is under the control of the sympathetic system of nerves, either through their action or inaction.

**237. The mechanism of inflammation.** I have not been fortunate enough to see *all* that the celebrated Cohnheim has described, although I have followed his method "to the letter," but as the whole process has been seen by many, whose authority is trustworthy, I will give his description of the interesting phenomena of inflammation as seen by himself and described in Virchow's Archives XL. A part of this description is taken from the Introduction to Green's Pathological Anatomy, 1881.

The dilatation of the blood carriers gives rise to the redness of the parts. Before the transudation of serum takes place—according to my observation—the arteries, capillaries and veins have to be dilated fully ten diameters; capillaries that were not in sight before this increase, are now enlarged and carry both red and white blood corpuscles; but there is no evidence of transudation in these latter capillaries. This is a fact which I have seen repeatedly, that has not been described by investigators of this subject. There is no contraction of the arteries previous to their dilation. The increase in caliber is accompanied by increase in length, which is seen by the vessel becoming tortuous. After the dilation has assumed permanency, i. e. no further increase in the size of the vessel, there is increase in rapidity in the blood-flow, especially noticeable in the arteries. After a time, longer or shorter in every experiment that I have made, the flow of blood becomes slower and slower. They accumulate until the vessel is nearly filled with them, and the stream of red corpuscles passes through them slowly.

**238. Passage of leucocytes.** The white corpuscles



that are against the sides of the vessel, slowly become taller, and, according to Cohnheim—a sight that I have not yet seen—pass through the wall. At first small, button-shaped elevations are seen springing from the outer end of the vessel, these gradually increase in size until they assume the form of pear-shaped bodies, which still adhere by their small ends to the vascular wall. Ultimately the small pedicle of protoplasm, by which they are attached to the vessel gives way, and the passage is complete, the white corpuscle remaining outside the vessel (green). This is what transpires with the veins; the same is seen in the capillaries, but to a much less extent. It is a singular fact that no passage of the red corpuscles takes place from the arteries, but does form the capillaries. As soon as the blood-stream ceases to flow, all passages of white and red corpuscles cease also, but there are evidences that serum continues to exude.

**239. The phenomena of inflammation as seen in the frog's tongue.** The irritation, in this instance, was occasioned by the application of nitrate of silver. Here, to quote from Green, in the most central portion of the inflamed area, that which is in absolute stasis; the blood readily coagulates, and no emigration takes place. This is due to the vitality of the vessels being completely destroyed by the injurious agent. Outside this, there is an area in which the blood is circulating very slowly, the capillaries are filled with red corpuscles, many of which escape, whilst more externally still, is an area in which the blood is less stagnant, and abundant emigration is taking place, the white corpuscles escaping from the veins and capillaries, the red, from the capillaries alone. The central area, which usually dies, is thus surrounded by an enormous number of red and white corpuscles, and the red corpuscles which have accumulated in this area are so closely packed that their outlines can scarcely be distinguished.

**240. The products of inflammation** consists chiefly of liquor sanguinis. This contains a large proportion



of albumen, phosphates and carbonates, the elements of the blood. It also contains a large number of cell-structures, the majority of which are of white blood corpuscles, epithelial and endothelial structures, and cells derived from the proliferating elements of the inflamed tissue. The quantity of these different cells vary with the intensity of the inflammation and with the stage. The cell emigration is generally much more abundant in the later than in the earlier periods of the inflammatory action.

**241.** In those membranes which possess a lax structure, and in which the vessels are but little supported, the effusion is most abundant. We have such structures in the nasal cavities.

**242. Proliferation.** Formerly, it was believed that the cells of nearly all tissues exhibit active changes in inflammation; and that many of the young elements which abound in inflamed parts were the products of their proliferation; but since the introduction of the chloride of gold process by Cohnheim, it has become obvious that the part played by the cells of the tissue in inflammation is much less than was formerly supposed; and that in most cases the young elements which infiltrate the inflamed structure **are wholly escaped leucocytes**, and not a proliferation of the tissues. The cells in which active changes undoubtedly occur are those which are normally active, and in which growth and proliferation are associated with the maintenance of the tissues of which they are constituents. Such are epithelial elements. The activity of these are increased by the process of inflammation, and it is in the inflammation of the mucous membranes that cellular activity and proliferation are so constantly seen.

The age of the cells, probably, also influence their tendency to become active, the younger being less stable and prone to proliferate than the older.

**243. The essentials of proliferation.** The vascular phenomena are less marked, the exudation less albuminous, and the transudation of white corpuscles less abun-



lant in an inflammation of low intensity. It is in the less intense and chronic forms of inflammation that proliferation occupies a prominent place. The **new growth consists**, in the main, of an increase of the **connective tissue around the blood vessels**. Green says, that the less intense the inflammatory process the more do the resulting textural changes tend to be limited to the connective tissue which is immediately adjacent to the blood-vessels; whereas, in inflammations of somewhat great intensity, the epithelial elements become involved. In other words, the more severe the inflammation the greater is the liability to epithelial proliferation, and the more chronic the inflammation the greater the proliferation of the connective tissue surrounding the blood-vessels.

**244. Chronic inflammation painless.** It is seen, that in order that proliferation of the mucous membrane may be continuous, the inflammation must be of a low grade, so low that it is painless, at the same time it must be of sufficient intensity to cause the white corpuscles to exude, and the blood must also be of a sufficiently fatty character, to lead to a fibrinous exudation. It is from this exudation, containing white corpuscles, that the new tissue, the proliferated tissue, is formed, and which may be regarded as connective tissue. It is the painless formation of this tissue that makes chronic inflammation a very dangerous complaint. Why? Because it injures the patient without giving the least warning by the production of any sensation.

**245. Recovery.** If the cold has not been too severe, and so frequently repeated, so as to maintain its degree of severity, the hyperemia disappears; that is, the blood vessels diminish to their normal caliber, the transudation of the white corpuscles having ceased before this took place. The cells that escaped undergo fatty metamorphosis; others pass into and are **removed by the lymphatic organs that are always ready to remove ill-nourished tissue** and the membrane gradually returns to its normal condition. This restoration will obviously be



more easily effected in the earlier years of life than in the more advanced, when more advanced stages of inflammation are seen.

**246. Essentials of recovery.** This depends upon the return of the walls of the blood-vessel to their normal condition, and upon the proper circulation of the blood through them. Cohnheim has pointed out, that whatever favors the re-establishment of the circulation in the inflamed area will favor recovery. A necessary element in recovery, is the removal of the inflammatory products. If the proliferation is not removed by lymphatics, mechanical means must be resorted to, to effect this. In the young, the lymphatics are equal to the task, in the aged they are not.

**247. Removal of proliferative structure** also frequently takes place solely through the absorbents. As stated in **243**, the sub-epithelial connective tissue is formed around the blood-vessels, and becomes infiltrated to such an extent that pressure is gradually exercised by the new growth, so as to prevent the usual and necessary supply of blood, **resulting in atrophic changes** in the proliferations, tissue that, if not well nourished, must fall a prey to the absorbents. But with this waste in the proliferative tissue, atrophy of the proper glandular structures is also seen, thus leaving the surface of the now atrophic tissue abnormally dry. As will be seen hereafter, these atrophied glands may be restored to nearly their normal functions by a local treatment that will relieve the dryness, and thus prevent the irritation that this condition induces. If these applications are maintained the atrophied glands will gradually return to their normal action, and the membrane again be moistened with mucus, a condition essential to its healthy action.

**248. NASAL TUMORS. Gelatinous polypsi - Myxoma.** These growths are always the result of chronic inflammation. The fact that Dr. Jos. Coats, of London, in his excellent Manual of Pathology, says, on page 456, that "they appear occasionally without any such cause,"



chronic catarrh of the nasal passages) only proves correct what I have said of the most intelligent of the profession, namely: they do not recognize the disease, unless they see the sufferer have a large amount of muco-purulent secretion flowing from his nostrils.

As stated in 243, the more severe the inflammation, the greater liability to epithelial proliferation, and the greater the number of white blood corpuscles that pass through the distended walls of the inflamed blood-vessel.

It is suspected that these leucocytes may play some part in the development of the gelatinous growths; to either the leucocytes or the epithelial elements is now assigned the cause of the appearance of the tumor. Their presence is the result of some direct irritation of the tissue, which is thereby stimulated. The growth of the tumor is the result of the proliferation of the tissue they spring from, or the leucocytes cause a proliferation of the tissue in which they grow.

Simple irritation, alone, cannot cause the development of a tumor of any kind. The irritation gives rise to inflammation; concomitant with this is the increase in supply of nutritive material, the blood; then the tissue inflamed must possess some special predisposition to the formation of tissue similar to the new growth. We cannot have a corn, condylomata or an exostosis, where we usually see myxomata or *vice versa*.

In structure, some of the growths present simply the constituents of the inflamed mucous membrane, with rather large serous spaces, and covered with cylindrical ciliated epithelium. On removing one of these tumors the ciliary motion can be seen, if examined in salt water, 5j to the 9j. The connective tissue is usually so infiltrated with serum as to give it the appearance of edema. In some instances there is seen a new growth on the tumor, having the same appearance in every respect as the parent tumor. This shows that a new growth can spring from other growths as well as on an inflamed mucous membrane; so



that the originating cause of all myxoma is not alone from escaped leucocytes.

**249. Return of nasal tumors.** According to my observations, those patients from whom I have removed gelatinous polypi, that had **sprouts of new tumors** on the original one, were very liable to have a **return of the tumor** if any of the original tumor was left in the nasal chamber; also, that should other tumors appear, they were always of a fibrous character.

**250.** Another peculiarity connected with gelatinous tumors was, that a thorough but mild treatment of the catarrhal mucous membrane invariably caused them to shrink, and many of the smaller of the younger ones disappeared completely and remained permanently away. In one case, I now have in mind, the tumors were not removed by mechanical means, but disappeared under the spray treatment, and have not returned since. This occurred in 1876. I have other cases of the same kind of more recent date.

**251. Fibrous tumors, Fibroma.** These originate mostly in deeper tissues, and are the result of an inflammation slower than that which gives rise to myxoma. They are composed of firm, dense tissue, resembling connective tissue, as they really are. The fibers are distributed without any definite arrangement, in bundles of various sizes; sometimes they are arranged concentrically around the blood-vessel, that gave them existence, and supplied them with cell structure for their formation, as mentioned in **243**. The cells are minute, spindle-shaped, fusiform bodies, and are often so small and indistinct as, in the fresh specimen, to become visible only after the addition of dilute acetic acid. These tumors contain but few blood vessels, if they are firm and inelastic; but if soft, they sometimes have a cavernous network of blood-vessels, the walls of which are so firmly united to the fibers of the tumor, that when divided or ruptured they are unable to retract; consequently, a protracted and sometimes a profuse hemorrhage follows injury of the tumor.



**252. ULCERATION OF THE MUCOUS MEMBRANE** The first phase of inflammation of the mucous membrane is hyperemia; if the irritation is great and continuous, complete stasis of the blood flow takes place. If this condition lasts, a variable length of time, for a few hours at most, the vitality of the part and the vessel is completely destroyed in that area where the injurious influence of the stasis is most marked and a thrombus is the result. This, together with the interference with the circulation due to exudation from vessels where the blood-flow is not completely arrested, leads to the death of more or less of the affected part. This is a brief description of ulceration or "*molecular death*" as Dr. Gross used to call it. After the death of the part, disintegration takes place; and before death takes place a thrombus is found in every blood-vessel; which prevents hemorrhage when the parts become disintegrated.

**253. The white blood corpuscles** that pass out of the vessels just outside of the location of the stasis, **are indistinguishable from pus-corpuscles**, and it must be remembered that one origin of pus is from the blood.

**254. Pus exercises a most injurious influence** on tissues bathed by it, as it appears to be endowed with the power of absorbing the tissues with which it comes in contact, or causes their liquifaction. Hence, the softening and disintegration of the tissues which constitute such a destructive element in intense inflammations, such, for instance, as we see in tertiary syphilis of the pharynx, tonsils and soft palate.

**255.** The more intense the inflammation, the more rapid will the ulcer destroy the tissues; consequently, the more the inflammation can be decreased, the less rapidly will an ulcer destroy the tissue, and less pus will be formed. Newly formed pus does much more damage than aged pus, because the elements of the latter undergo fatty metamorphosis which renders it less capable of absorbing the tissues. This is the reason for the rapidity of syphilitic ulceration. In the first place the whole



mucous membrane is intensely inflamed, presenting just the kind of inflammation that results in ulceration; and when this does take place, the rapidly new-formed pus quickly absorbs and liquifies the tissues occupied by the thrombi. This liquification is what Dr. Gross used to call "molecular death."

**256. Cartilaginous over-growth** of the outer portion of the septum of the nasal chambers is far from being an uncommon complaint, and it always originates from chronic catarrhal inflammation.

**257. Necrosis of the turbinated bones and septum** is extremely rare in non-syphilitic patients, but I am satisfied that carbolic acid will maintain a congestion that will occasion a necrosis of these thin bones. An inflammation that is so severe as to interfere with the nutritive supply—the blood—to the periosteum will cause the death of the bone. It is usual to say that necrosis of any of the bones in the nasal cavities indicates syphilitic disease. I do not now, as I formerly did, think that such a conclusion is always right. In fact I have treated many syphilitic patients, male and female, who had severe catarrhal inflammation of the nasal passages and throat; but no sign of ulceration or bone necrosis. I have been led to believe that it is the condition of the system following mercurialization that makes the death of bone in the nasal passages possible. As already intimated, carbolic acid may produce the same devitalizing effect.

Whatever produces obstruction in the arteries and capillaries over a comparative large space—not a point, as in ulceration—produces necrosis.

**258. ABSCESS** formation is not an infrequent result of the inflammatory process. It occurs most frequently in children of light hair and very fair skin. The pus corpuscles contained in the abscess, so closely resemble the white blood corpuscles that they cannot be distinguished from each other. Immediately on opening the



abscess, the liquid has an alkaline reaction, and closely resembles the liquor sanguinis.

**259. HEMORRHAGE** from the nasal passages of catarrhal patients is an evidence of excessive congestion and of rupture of the walls of some of the over-stretched blood-vessels. At the time of the epistaxis, the sufferer, who has had a long continued catarrhal inflammation, is usually laboring under an acute attack. Cold in the head, his bowels have been constipated, nasal secretions have been scanty, so that the fluid portion of the blood is greatly in excess of the normal quantity. The blood-vessels of the inflamed part, being greatly engorged, so that they are from twenty to forty times their normal diameter, give way under the augmented increase in the volume of the blood, and hemorrhage is the result.

If the patient is suffering from an impoverished condition of the blood, the epistaxis, if long-continued, will further debilitate the system, tend to produce a hemorrhagic diathesis. Such a result of epistaxis is not very common, yet I have seen eleven cases in the treatment of a little over 12,000 patients of nasal disease in private practice.

**260. DIAPEDESIS**, a passage of red blood corpuscles through the capillaries, without rupture of the vessels themselves. This is an uncommon kind of hemorrhage, and is due to a lowered condition of the whole system.

**261. RHINOLITHS**, or nasal calculi, are concretions occasionally found in the nasal cavities. They owe their origin to the salts of the muco-purulent secretions. They are found usually under the inferior turbinated process. Sometimes a small foreign body is the nucleus around which phosphatic deposits have become agglutinated and hardened in successive layers.

The crusts that form in the nostrils of persons afflicted with chronic ozena become consolidated and subsequently become covered with carbonates and phosphates of lime.



The retention of the muco-purulent secretion tends to the formation of rhinoliths.

**262. FOLLICULAR PHARYNGITIS** is always secondary to nasal and pharyngo-nasal catarrh. It rarely produces any inconvenience. The follicles are proliferations of the sub-mucous layers of the mucous membrane. These growths push through the mucous layer as a needle pushes through a piece of domestic; that is, without destroying any of the membrane. If a large number of these follicles sprout up through the mucous membrane, it will cause the atrophy of the membrane, through pressure, because of the blood supply being cut off to some extent. The subject does not merit the investigation that should be given to a wart on the face.

**263. PARESIS of the SOFT PALATE** is frequently concomitant with acute pharyngitis and tonsillitis; and disappears with the concomitant complaint. The first knowledge that sufferers have of any trouble with their palate, as this organ is usually called, is the passage of fluids up behind the soft palate into the posterior nasal passages, followed by a choking sensation.

**264. Elongation and enlargement of the UVULA** are both secondary to nasal and pharyngo-nasal catarrh of long standing. The elongation is due to relaxation of the tissues, the result of chronic inflammation. The same conditions that produce enlargement, by proliferation, of the mucous membrane covering the inferior and middle-turbinated processes, produce enlargement of the uvula. The very same condition of things takes place in the proliferous tonsils, usually called hypertrophied tonsils.

There are no tonsils that are hypertrophied. This term means a normal, increase of the size of the organ with an increase of its normal functions *pari passu*. Such increase in the tonsil never takes place. A proliferated tonsil is an organ increased in size by proliferation, but the performance of whose function is decreased in proportion to the increase of its size.

**265. Cedema of the EPIGLOTTIS** is the result of



exudation of serum from the blood-vessels during an excessive inflammation, as described in 233. **Ulceration** and **proliferation** of this organ are comparatively rare affections. These processes do not differ from that of the mucous membrane described in 237 and 242.

**266. The curvature of the epiglottis.** The microscopic examination of an epiglottis that has an abnormal curvature shows no change from the normal epiglottis; except that the pericondrium is thickened and more nodular, and the blood-vessels more numerous and larger in caliber. Most of the glands on the posterior surface are either in a proliferous or atrophied condition. These features are due to severe inflammation that occurred in childhood. The smaller the curve, the younger the patient when the inflammation occurred.

**267. The pathological appearances of the LARYNX** are due to the same inflammatory processes as take place in the passages superior to it, and are always affected secondarily to them. This is a fact that should not be forgotten. The mucous membrane covering the arytenoid processes is well supplied with connective tissue under the sub-mucous membrane; consequently, when acute inflammation of a severe degree affects these parts, oedema is the result, from the exudation of serum from the distended blood-vessels, as stated in 232. If the inflammation is less severe, and the system is debilitated by syphilis or some other constitutional poison, or the parts have been treated locally by a strong solution of nitric acid: then molecular death of some part will occur, and ulceration is the result, as stated in 237. If the inflammation is of a low grade and long-continued, proliferation of one or two kinds may take place, namely, the epithelial, which may result in a small tumor, as described in 242, or a connective tissue growth, which takes place around the blood-vessels, as described in 243.

**268. The debility of the muscles of the vocal cords** is most frequently the result of inflammation in the



pharyngo-nasal cavity, and is the result of reflex action.

**269. Appearance of mucous membrane after death.** It is a singular fact that the excessive hyperemia seen during life, at once disappears from all the mucous membranes of the nose, throat and ears after death; and, instead of showing excessive redness, actually appears more blanched than healthy mucous membrane. It is only those membranes, as, for instance, on the turbinated processes, where partial mortification takes place before death, is there any evidence of excessive diseased action.

**270. Effect of mortification of the turbinated processes.** It is not an uncommon thing to see positive evidences of mortification on the turbinated processes, that took place before death. Of course, in every case where this took place the patient's mind must have been seriously affected. In every instance, where evidences of mortification were seen after death, the patient before death, was entirely unconscious, and I believe this condition of the mind is due to some extent, at least, to the mortification of the turbinated processes.



## CHAPTER X.

### PRACTICAL PATHOLOGY OF THE DISEASES OF THE EUSTACHIAN TUBE, MIDDLE EAR, MEMBRANA TYMPANI, MASTOID CELLS AND THE INTERNAL AND EXTERNAL EAR.

#### 271. CATARRH OF THE EUSTACHIAN TUBE.

The pathology of this canal is not well known. Examination with the pharyngeal mirror shows that the mouth of the Eustachian tube is smaller in cases that are suffering from gradual increase of deafness, thereby showing that the mucous membrane of the mouth is in a proliferous condition. The process of proliferation has been described in 242. What effect chronic inflammation has on the shape of the capillary opening in the upper portion of the slit-shaped Eustachian tube is not yet settled. The mucous membrane of the tube itself is subject to the same proliferative process as that of the pharyngo-nasal cavity, which, of course, tends to slowly decrease the opportunity for air to pass through it to the middle ear.

272. The mucous glands are also changed by chronic inflammation; the interstitial connective tissue is much thickened; the walls of the glands are also thickened, so that the opening of the mucous gland is often completely obliterated. This is the anatomical cause of the retention of the secretion in proliferated mucous membrane. It is even that this retention of mucus also increases its thickness. Even when the thickened membrane is stripped, the filled mucous glands will give the surface a bumpy appearance. It is not by any means certain that these glands will not again perform their functions, if properly treated, after they are relieved from abnormal



pressure, this relief occurring when the proliferated membrane becomes atrophied.

**273.** The mucous membrane of the middle ear is very liable to be affected by proliferative inflammation. Its microscopical appearance does not differ very materially from proliferated mucous membrane of other portions that have been considered. Frequently there is great thickening of the petrous portion of the temporal bone, and the tympanic cavity is reduced by the excessive concavity of the membrana tympani. The ossicula auditus are very frequently ankylosed; and the membrana rotunda, as well as the membrane around the base of the stapes, becomes thickened by proliferation of the mucous membrane. Sometimes the stapes will become firmly ankylosed to the margin of the fenestra ovalis. The bones most frequently ankylosed are the malleus and incus. I saw one tympanic cavity, taken from an old man, who evidently had had syphilis, in which there was numerous cicatricial bands attached, and drawn in all directions. They drew all the small bones out of place; the stapes was locked to the conical pyramid that contained the stapedius; and the membrana tympani was almost entirely obliterated. The same kind of cicatricial bands were observed in the mastoid cells. Besides these conditions, Roosa says that an exostosis occurs in the inner surface of the neck of the malleus; a false membrane on the tendon of the tensor tympani muscle; atrophy and fatty and fibrous degeneration of the tensor tympani, and thickening and deposits of lime, and of large round cells in the connective-tissue stroma of the fenestra rotunda.

**274.** Dr. Jos. Gruber's\* account of the pathology of otitis media hypertrophica is, that, "from some cause or other, there is first a great hyperæmia with distention of the membrane, and in part the new formation of blood-vessels, and increase of the intercellular fluid. The connective-tissue corpuscles are increased. The tissue of the inflamed mucous membrane is less moist than in the catarrhal form. The new formations, or new elementary formations, go on to a higher development. The most various adhesions may occur, or a soft

\*Lehrbuch der Ohrenheilkunde, S. 516. Wein, 1870.



concrete substance appears, which is either evenly spread over the whole portion that was originally inflamed, and thus leads to hypertrophy of the mucous membrane, or it may go on to granular formation. Many of these new formations may also undergo progressive metamorphosis—they may undergo molecular disintegration, become fatty, and be absorbed."\*

**375. Necrosis of the osseous walls of the MIDDLE EAR** is not a common result of ulceration following persistent catarrhal inflammation. In this way, Schwartz's circumscribed caries of the tympanum occurs on the roof of labyrinth wall, and other places, but especially on the thin osseous lamella, which separates the meatus, where the head of the malleus lies, from the external meatus. It is exceptional that this should take place without the ulceration perforating the membrana tympani. Those carious spots that are in sight are recognizable by the yellowish discoloration, roughness, and irregular margin of the ulcerated mucous membrane. If the ulceration perforates the fallopian canal, facial paralysis may result from inflammation of the facial nerve or from pressure of the exudation on the trunk of the nerve. Yet in cases where dissection shows a carious obstruction of the canal, the facial paralysis during life is sometimes absent (Gruber).

**376. The ossicula auditus** may be affected with necrosis at any age of life; nor is it a very uncommon occurrence to meet with such cases in aural practice. Excessive inflammation followed by ulceration of the mucous membrane is generally the cause. Most of the cases that lose these small bones had been affected with syphilis and had taken mercury for a long period of time. I have had one case of carious destruction of the lower extremity of the manubrium, that I am sure was the result of the application of a strong solution of carbolic acid.

\* Reuss, Diseases of the Ear, p. 374.



Circumscribed destructive processes on the head of the malleus, with injury to the manubrium, are not rare. Circumscribed granulations on the upper portion of the membrana tympani, around the short process, should arouse suspicion of an isolated caries on the head of the malleus (Schwartz). Instances of the head of the malleus being separated by caries, leaving the manubrium on the membrana tympani, have been known.

**277. The stapes**, if attacked by caries, is affected on its head and crura; its base resists destructive processes.

**278. The membrana tympani** is very liable to be affected by pathological changes, the result of middle ear inflammation. "Dissections alone cannot give us sufficient information in regard to the changes observed during life, because we are dealing with an organ which soon after death changes its color, polish, transparency and curvature" (Schwartz).

This change of curvature after death, indicates that either the curvature, during life, was maintained by the tension of the tensor tympani or by the rarefied condition of the air in the middle ear. See topic **199**.

When affected by chronic inflammation, it is never an isolated disease, and is always simultaneously inflamed with the middle ear, Eustachian tube, pharyngo-nasal and nasal cavities. In the membrane itself there are sometimes deposits of fat and lime as well as cysts.

**279. Parasites** sometimes affect the membrana tympani. They are chiefly vegetable, as mould fungi. They are developed and find nourishment in the meatus and on the membrana tympani, and give rise to inflammation. Vrichow calls the disease "Otomycosis." This parasite does not affect healthy integument.

**Otomycosis** can be seen frequently, by the unaided eye. They are recognized in profile against the wall of the meatus, in insular groups, by the fungus, with their thread like heads, and their peculiar white deposits on the drum membrane.



The **larvæ of insects** are not unfrequently deposited in the muco purulent secretion of the meatus and produce some myringitis.

**280. Abnormal color of the membrana tympani.** The normal color of the membrana tympani, as stated in 211, is that of a pearly white with a slight pink tint: this varies to some extent in normal ears. Chronic inflammation causes quite a number of changes. The usual colors produced by this disease are, gray, dirty gray, yellowish gray, yellowish red, and several of these colors mixed on the same membrane. These changes in color are due to different grades of inflammation as well as different ages of inflammation. The gray color is due to the proliferation of connective or fibrous tissue in the mucous membrane lining the inside of the drum membrane.

**281.** It is evident that the **transparency** of membrana tympani will also be decreased by proliferative inflammation. The more yellow the membrane and the deeper its gray color, the more opaque will be its transparency, and, as a rule, the more marked the opacity.

**282. Opacities.** Besides the general opacity occasioned by the thickening of the drum membrane, there are circumscribed opacities, occasioned by calcification. They are seen on both sides of the manubrium, and sometimes in the shape of a half-moon under the manubrium. Excessive thickening of the mucous membrane frequently produces a total opacity of the membrana tympani. This is brought about by proliferation: the blood vessels are larger and longer, and the cells of fibrous or connective tissue increase its bulk.

**283. Abnormal Concavity** of the drum membrane is common in deaf ears: and the degree of curvature is in all proportions. This condition is solely due to a diseased condition of the Eustachian tube, and is not dependent upon any other cause. Of course, one part of the membrane may become more or less diseased, because of



certain abnormal conditions of the mucous membrane of the middle ear; but the concavity itself is alone due to the amount of air that passes through the Eustachian tube. The traction exercised by the tensor tympani has nothing to do with abnormal curvature. This is evident from what is seen on the inspection of every ear that has an excessively incurved membrana tympani; the manubrium is plainly in sight in every instance. There is no exception to this. There is nothing that can set aside these facts. This condition of the membrana tympani tends to disprove the prevailing theories concerning the function of the Eustachian tube, namely: that it is an open passage at every act of deglutition.

**384. Perforation of the drum membrane** is seen very frequently, and may occur in any part, but the most common locality is in the lower portion, where it will be bathed by the irritating muco-purulent secretion of the acutely inflamed middle ear. This at once points to one of the most frequent causes of the ulceration that perforates the membrane. The abnormal closure of the Eustachian tube, prevents the supply of the normal quantity of air to the middle ear, and the air that is in it, is absorbed in a short time, causing excessive rarefaction, and consequently excessive incurving of the membrana tympani. With this excessive concavity, the membrane is stretched to its utmost, and circulation in it is almost entirely checked. This causes irritation and consequent flow of muco-purulent secretions. The presence of this irritating secretion, bathing its lower portion, tends to further increase inflammation, at some point most exposed, and ulceration is the result.

**385. Atrophy of the membrana tympani** is caused by the same pathological process as atrophy of the enlarged tonsils and of the turbinated processes in the nasal chambers. If the blood supply is taken away, or lessened to a certain quantity, atrophy is always the result. This lessening of blood supply is brought about by the exudation of blood plasma, and white blood



corpuscles from the over distended blood-vessels, which is the result of inflammation.

**286. The mastoid cells** are frequently implicated with severe and long standing inflammation of the middle ear. Sometimes they are completely filled with swollen mucous membrane and muco-purulent secretion and red blood corpuscles. Such severe disease threatens life. The pathological processes of this condition of things are precisely similar to other mucous cavities; with this exception, these cells have but one, though sometimes several small openings through which these abnormal products may escape. If these products do not thus escape, life will have to be sacrificed, that is if the mastoid process is not trephined to allow an escape of the pent up secretions. This complaint is called *Eso-mastoiditis* or *Cellitis Mastoides*.

**287. MASTOIDITIS.** Inflammation and necrosis of the mastoid process. Not unfrequently this diseased condition of the mastoid cells is not recognized, until an external swelling appears over the mastoid process. This swelling is occasioned by a periostitis, which may result in a collection of pus between the periosteum and the bone. If this is not soon relieved, a necrosis of the bone will follow. Sometimes this periosteal abscess may burst through the periosteum, but not through the integument over the mastoid process, and then burrow into the connective tissue, down the neck, as far as the shoulder.

Some authors say that mastoiditis may be primary. I doubt it. Thirty years experience in treating ear diseases has not brought me an uncomplicated case.

Necrosis is not an uncommon result of mastoiditis, and occurs most frequently in children. Large pieces of the bone are frequently exfoliated; sometimes large sequestra are found within the cells, their presence being shown by a small fistula escaping from the ear passage, from which a stream of exceedingly offensive pus exudes. As the dead portions of bone are removed, the whole cavity of the mastoid cells becomes one mass of



granulations, which frequently become as hard as the surrounding osseous tissue.

**288.** The internal ear is far more frequently diseased than is recognized even by physicians who have a large ear practice. I believe that many middle ear troubles produce secondary effects in the internal ear, which are not noticed until found out by aid of the tuning fork. Hyperæmia, inflammation and necrosis, are conditions that are recognized only after the death of the sufferer. Sometimes the cochlea is discharged during the life of the patient. The pathological conditions that produce these abnormal changes are, for the most part, secondary to middle ear, or meningeal disease. Atrophy of the auditory nerve originates from disease of the part of the brain that gives origin to the nerve; that is, the floor of the fourth ventricle. In 1872 I made a post-mortem examination of a case that died of cerebro-spinal meningitis, and from an examination of the floor of the fourth ventricle, I think that deafness followed a contraction of the tissue covering the *portio mollis*, this nerve being quite soft. This soft nerve was compressed by this contracted tissue, the result of inflammation. Its functions were thus arrested. This accounts for the fact that patients on recovering from cerebro-spinal meningitis, can hear for a few days, but after a short time slowly, but imperceptibly to them, lose their hearing. I have the history of quite a number of such cases.

**289.** The pathology of the external ear involves the auricle and the auditory canal: the mastoid process having already been mentioned. The part that chronic catarrhal inflammation of the middle ear plays with the external ear is quite small: yet disease of these parts do occur, as secondary to the catarrhal disease mentioned. Eczema and erysipelas are very common affection of the outer ear; so is erythema. Tumors are not uncommon, such as atheroma, which is a tumor formed by the retention of sebaceous secretion. As a result of piercing the ear, apparently, a small, hard fibrous tumor



is sometimes seen. Their origin is uncertain. An eczema of the integument of the auditory canal is a common complaint. It is usually moist and leads to suppuration. The inflammation is frequently started by picking the canal to relieve an itching sensation, due to a dry condition of the skin, which in turn was the result of middle ear trouble.

**290. Furuncles** are most commonly seen in the anterior wall and is developed from some diseased sebaceous gland. As the swelling of the skin causes pressure on the small abscess, excessive pain is the result. The amount of pus in one of these abscesses, nearly equals the bulk of a common pea.



## SECTION IV.

### Etiology of Catarrhal Disease of the Nose, Throat and Ears.

It is a recognized fact that a knowledge of the cause of a disease adds greatly to the certainty of its successful treatment. Chronic catarrhal inflammation of the upper portion of the respiratory tract forms no exception to this rule. It is essential to the proper management of this disease that its etiology should be constantly remembered by both physician and patient. It is absurd to expect a patient to be successfully treated if he, either ignorantly or willfully, continues to renew the causes of his disease. One might as consistently take food known to him to be injurious, and to expect to be cured, while he continues to indulge his appetite with such articles of diet that will maintain his complaint.

A knowledge of the causes of chronic catarrhal inflammation of the Nose, Throat and Ears will indicate the correct course to be pursued with regard to cure or relief and prevention, and this declares that its etiology is of the greatest importance.



## CHAPTER XI.

THE TRANSMISSION OF THE EFFECTS OF LOW TEMPERATURE (COMMON COLDS) FROM THE SURFACE OF THE BODY TO THE ARTERIES OF THE MUCOUS MEMBRANE, BY MEANS OF THE SYMPATHETIC SYSTEM OF NERVES, THE CAUSE OF CATARRHAL INFLAMMATION OF THE NASAL PASSAGES.

291. The views about to be presented on the etiology of catarrhal inflammation of the nasal passages have been a gradual development, the substance of which was built, as it were, from suggestions received from numerous articles published in medical works and periodicals during the last thirty-five years, and from experiments that were intended to demonstrate other theories, as well as from extensive notes made concerning symptoms noticed by both my patients and myself during the same length of time.

292. I contend that catarrhal inflammation is *alone* the result of an exposure of the surface of the body to a temperature lower than that surface, and that the connecting link between the outside and inside surface, is the system of sympathetic nerves. To prove that such a connecting link exists, I will make quotations from accredited authorities, showing the nervous relationship:

293. The nervous relationship between the outer surface of the body and the mucous membrane. "The general distribution of the sympathetic filaments is to mucous membranes,—and possibly



to *integument*—to the non-striated muscular fibers, and particularly to the muscular coat of the arteries."\*

(a) "The most frequent cause of reflex vascular constriction is that which follows irritation of the central extremity of a sensitive nerve. This effect has been observed by many experimenters, and is regarded as nearly invariable. Galvanization of the central extremity of the sciatic nerve causes general constriction of the blood-vessels throughout other parts of the body, indicated by increased arterial pressure. A similar result is produced by irritation of the fifth nerve or other sensitive nerves or nerve roots, or by that of extended regions of the integument." \* \*

294. "This system of nerves controls, to a great extent, nutrition and growth, since its filaments are principally distributed to the muscular coat of the blood-vessels; and, by effecting the contraction or relaxation of these muscular fibers, they are enabled to increase or diminish the caliber of the blood-vessels, and thus proportionately to increase or diminish the amount of blood distributed to the various portions of the body."†

(a) "M. M. Bernard and Brown Sequard have proved by experiment, that if the branches of the sympathetic which accompany the facial artery be divided, the capillary vessels of the face, being deprived of their contractile power, become immediately distended with blood, and the temperature of the face is raised."‡

(b) "In 1852, Brown-Sequard showed that when the sympathetic nerve is divided in the neck, the central artery of the ear dilates, as the organ becomes vascular; and that when the peripheral end is excited, the same arteries contract; and in the same year he demonstrated that the former effect was dependent on *paralysis*, the latter on *spasm* of the muscular walls of the vessels." \* \* \*

295. "The cerebro spinal nerves are in the greatest abundance, and manifest their most striking properties, in the organs of animal life, the organs of the *sympathetic* system preponderate in the organs of nutrition, and in their influence on the functions of circulation, secretion, and growth." \* \* \* "Its nerves are distributed to glands and mucous membranes, and to muscular fibers which are independent of will." †

\* Flint's Physiology, p. 730.

\* \* Dalton's Physiology, p. 507.

† Darling and Ranney's Anatomy, p. 497.

‡ Holden's Anatomy, p. 57.

\* \* \* Burdon-Sanderson's Physiology, p. 257.

† † Dalton's Physiology, p. 497.



**296. "Contraction and Dilation of Arteries under Nervous Influence.**—When the sympathetic nerve is divided in the neck, one of the most immediate and striking effects is a vascular congestion in the parts above, on the corresponding side. This effect may be produced in any warm blooded animal, but is especially manifest in the ear of the white rabbit, where the vascularity is easily examined by transparency, and when the corresponding parts on the two sides can be directly compared with each other. A few minutes after section of the nerve all the vessels of the ear on the affected side become filled with blood. The artery enlarges, its branches become more numerous, the tissues generally are ruddy in color, and the marginal veins are increased in size; while many venous branches which were before invisible, become distinctly apparent. The artery no longer exhibits periodical constrictions, but remains in a state of permanent dilation, and the quantity of blood circulating in the ear is consequently increased.

**297.** "A variety of secondary consequences follow from this condition. First, the temperature of the ear is increased. A larger quantity of blood from the interior of the body, passing through the ear, communicates its warmth to the tissues of the part, and the increase of temperature is perceptible both by touch and the thermometer. Secondly, the blood in the veins becomes brighter, since in its more rapid passage through the capillaries it loses less oxygen, and consequently retains more nearly the hue of arterial blood. Thirdly, the sensibility of parts is increased and reflex action from irritation of the integument are more strongly pronounced.

**298.** "These results are not confined to the ear, but extend to all parts of the head and face on the side of the section. The skin, the mucous membrane, the mucous membrane of the mouth and nasal passages, even the **ENDORHEUM OF THE BRAIN**, and according to Vulpian, the fundus of the eye when examined by the ophthalmoscope, all show an increased vascularity and more abundant circulation."

**299.** "These effects of division of the sympathetic are all reversed by stimulation. If the upper extremity of the divided nerve be subjected to faradization, the arteries of the affected ear diminish in size, the vascular congestion disappears, and the local temperature becomes reduced to its normal standard, or even lower." \*

**300.** "From facts above detailed it is evident that the vasomotor nerves of the head and face come from below. They ascend in the cervical portion of the sympathetic nerve, and pass, through the superior cervical ganglion, to their distribution in the blood-vessels. The superior cervical ganglion is itself, in some degree, a source of power for

\* Oatton's Physiology, pp. 502 and 503.



these nerves; and its extirpation produces complete and durable vascular relaxations in the parts above."<sup>\*</sup>

**301. These quotations prove, conclusively :**

*First* : that there exists an intimate connection between the integument and the mucous membrane, and that this relationship is maintained by the sympathetic nerves, which extend from the one to the other.

*Second* : that the congestion of the mucous membrane of the air passages is alone governed by the cervical sympathetic ganglia.

The establishing of these facts beyond doubt, places the views, about to be given, concerning hygienic management and therapeutic treatment, upon a firm basis. They plainly show that catarrhal inflammation, and all its concomitant complaints, attacks the patient through the surface of the body, through his sentient nerves, and they as plainly show that as the disease of the mucous membrane originates in the integument, that irritating local applications to the mucous membrane but adds to the already existing irritation without relieving, in the least, the cause of the irritation.

**302. Clinical proofs.** There are clinical facts, almost without number, that plainly attest the correctness of the deductions made by the above authors.

I will now give some extended quotations — that contain these clinical facts — from the pens of well-known authors, that clearly demonstrate the nervous relationship between the integument and the mucous membrane. I will place them, *seriatim*, before the reader as they were brought to my attention, many years ago. It was largely the influence of these articles that lead, or rather, forced me to entertain my present view concerning the etiology of catarrhal inflammation of the air passages.

**303. Dr. Matthew Troy's article.** The first article is from the pen of Dr. Matthew Troy, of Whiteville, N. C.; published in the July number of the *American*

<sup>\*</sup> Dalton's Physiology, p. 591



*Journal of Medical Sciences*, 1852, page 104, on the NATURE AND CAUSE OF TUBERCULAR DEPOSITS."

Although at the time, 1852, only a medical student, I was so favorably impressed with the force of his arguments, that I ever afterward bore the subject in mind.

His views of the nature of the deposit, were that it was a result of a diseased condition of the sebaceous follicles of the skin of the body; that is, an abnormal condition of the skin as an excretory gland. He says:

304. "The mucous membrane lining the bronchial apparatus and the excretory canal, is but the inversion of the external tegument of the body, which it resembles in structure, and to a great extent, in function so nearly, that in the lowest animals there is no difference except between them, except the accident of position. This membrane is lined throughout its extent inwardly as well as outwardly, with clusters of minute glandules; those on the external surface being called, by Mr. Erasmus Wilson, at not less than seven millions in number. The action of all these glandules is depuratory or excretory. The secretion of none of them is destined to be reabsorbed, nor can it be retained in the blood without injury to the system.

A defect in physiology is better ascertained than that when the secretion of an organ, especially an excretory organ, is retained in the blood, in effort to be eliminated by some other organ, usually the one most nearly allied to it in function. (Carpenter's Physiology, p. 608.)

Now, if the function of the skin is not properly performed, it is as if the mucous membranes will be the first to suffer; that is, it will not perfectly succeed in supplying, by a vicarious or augmented natural action, the depuration ordinarily effected by the usual function of the skin. It is from the overwhelming congestion which they are effected, in the attempt to eliminate the secretion of the skin, that death takes place, when the secretion of that organ is only suspended, as by a varnish, for instance.

Is the function of the skin badly performed in phthisis? Formerly, a pearly white skin was considered characteristic of the disease, or at least of the tubercular diathesis. But it is now said that too much was laid upon this peculiarity, as the disease very frequently occurs in those who do not possess it. But when we look on the skin as a great depuratory organ, the retention of the secretion in the blood causes death in a few hours, it is hard to conceive that too much attention can be paid to its peculiarities in any case. I believe all writers still recognize a peculiarity, a cognized anatomical difference of structure from the healthy skin. It seems to be this, that the skin is harsh and dry. Let its texture be fine and



white, or coarse and dark, it is uniformly dry and inelastic. It is easily washed clean; dirt does not closely adhere to it. In a word the sebaceous secretion is deficient.

"If, upon examination after death from any disease, the liver, biliary membrane of the alimentary canal, or kidneys were found in a state different from the healthy standard, this state would be considered as constituting a prominent feature in the pathology of the disease.

"Even if there was nothing in those who inherit the diathesis indicative of a deficient development of the glandule of the skin, the CAUSES WHICH PRODUCE THE DISEASE ARE SUFFICIENT OF THEMSELVES TO POINT OUT ITS TRUE NATURE. Everything which depresses the action of the skin tends to the production of tubercles. Everything which exalts its functions acts as a preventive."

305. The whole article is written in this argumentative style, and produced a lasting impression on my mind, of that has never been erased; but I did not know how to apply the information gained, so as to relieve the disease in question. I did not at that time endeavor to find the cause for the abnormal condition of the skin, nor to find what relation, in regard to time, there was between the abnormal condition of the skin and the disease in the lung.

I believed Dr. Troy, when he said that everything that exalts the function of the skin, acts as a prevention of lung disease, but knew of no way of exalting this function except by bathing and by friction. The former I soon found was followed by exceedingly poor results. Ever after this failure, I ascribed the fault to my practice, and not to Dr. Troy's theory.

306. On my part, the subject rested here, until 1856, at which time, I read an interesting article from Sir James Simpson, of Edinburgh, Scotland, on the "External Use of Oil in the Prevention and Treatment of Scrofula, Phthisis, etc." This was first published in the *Edinburgh Monthly Journal of Medical Science* for October, 1856, and reprinted in "The Obstetric Memoirs and Contributions;" 1856, Vol. II. page 441.

I had read but a paragraph of this article, when the views of Dr. Troy recurred to my mind, and as I progressed, I saw that the one article supplemented the other, as every one who has read them must see.



Shapson's practice proved that Troy was on the right track to arrive at the etiology of lung disease, and shows the intimate relationship between the integument and the mucous membrane of the air passages.

I propose to take quite extensive quotations from Dr. Shapson's very instructive article. These quotations will show that when the mucous membrane is affected with catarrhal inflammation, application to the integument cures the disease of the mucous membrane. This is but another method of proving that when a series of morbid impressions, such as frequent colds, are made on the surface of the body, the result is seen as inflammation of the mucous membrane of the air passages.

After alluding to the great number of individuals who die every year of pulmonary disease and scrofula,\* he says:

307. "I trust, therefore, that any new practical suggestion on the subject, tending, in however slight a degree, to abate the violence and fatality of such a fatal form of malady, will be received by my medical brethren with indulgence at least, whether the data which I have adduced convince them or not of its probable importance and success in this and in some other morbid states.

"A few months ago (December, 1852), when on a professional visit to Glasgow, in Roxburghshire, my friend Dr. Macdougall indirectly directed my attention to the healthy state and robust appearance of the operatives, at the large woolen manufactories in that city. In the course of conversation he further informed me, that the operatives were specially and strikingly exempt from consumptive and scrofulous diseases; and that they themselves attributed the robustity which they enjoyed from these affections to the free external application of oil to their bodies which occurred in various parts in the manufacture of woolen fabrics. This latter observation appeared particularly interesting, for, as I remarked to Dr. Macdougall at the same time, if oil applied *incidentally* to the skin during working was in the common course of factory labor capable of preventing or arresting struma or phthisis, the same means ought to be followed by the same effects, with still greater certainty, if the oil were used *methodically* to the same surface with the regularity of an artificial medicinal agent.

\* Under the term, scrofula, he includes both the more external forms of the disease and its more marked internal forms, as *tubercles mesenterica*.



"The casual observation of Dr. Macdougall appeared to me so interesting in itself, and possibly so important in the consequences to which it might lead, that it seemed a matter of moment to ascertain—*first*, if the same relative immunity from phthisical and strumous disease had been observed among the workers at other woolen mills in Scotland; *secondly*, if this immunity were attributable to the external application of oil; and *thirdly*, if the employment of external inunction, when resorted to as a prophylactic or therapeutic means, were capable of acting beneficially upon the body, and could be applied practically in the prevention and treatment of consumption, scrofula, and other affections.

"In the following communication I propose to state under several separate heads a brief, and, I fear, very imperfect outline of the results of this investigation.

**308.** "1. *Evidence of the comparative immunity of wool-workers from Phthisis and Scrofula.*

"The evidence which I have to adduce on this first point—as on one or two others—consists principally of extracts of letters from different medical practitioners residing in the various woolen factory districts of Scotland. The writers have had the best opportunities of studying the state of health of the operatives at the wool mills, and their concurrent testimony as to the fact of the comparative exemption of wool-workers from consumption and strumous diseases becomes only the stronger, when we consider that the observation has forced itself upon the attention of medical men practising in such different and distant districts, and in a great degree cut off from communication with each other.

"Galashiels is one of those districts of Scotland in which there is a considerable number of wool-mills and wool-workers. Regarding the health of the operatives at the mills, Dr. Macdougall writes me as follows:—

"During twenty years in which I have been in practice here, I can remember but few cases of death from among the wool-workers. Their immunity from disease is certainly most remarkable. Before the present factory bill was passed, children of seven years of age were sent to the mills for ten hours a day, yet they thrive and get healthy while so occupied. I have myself, repeatedly recommended parents to send delicate children to the mills as a prophylactic, and always with the most satisfactory results. Consumption, in fact, is unknown here amongst that class. Dr. Weir, who has been in practice here for forty-three years, begs me to mention, that he can fully corroborate these statements."



309. In a letter on the subject, Dr. Thomson of Hawick, alludes to the same point in the following terms:

"I find here the opinion is very general, or rather universal, that the employment is remarkably healthy, the workers being rarely, almost never, known to suffer from consumption or other chest affection, such as coughs, bronchitis, or asthma. They are usually well fed, and seldom off work on account of ill health—certainly not on account of any chest complaint. By certain parties long connected with the woolen mills, I am further informed that formerly, when there were no legal restrictions as to the age at which the workers entered in the factories, it was very frequent for sickly, ill nourished, thriving children to be put very early to the lighter kinds of work, with the express view of acquiring health and a better condition of body—so general was the faith in the healthiness of the employment; and in every case very great physical improvement was effected in the space of a few months. It has been often remarked, that even several members of a family, with a tendency to consumption, have been put to different employments, those working in the woolen mills have grown up robust and healthy, while the others employed as sailors, or at other trades, have fallen under consumption or other disease. Of this I have certainly met with several instances. They are on record and fully authenticated."

310. "At Alloa, and in the district round it, are congregated a number of woolen mills. In regard to the health of the workers in these manufactories, Dr. Brotherston of Alloa writes me as follows:

"The popular notion of this neighborhood is, that the work carried on in these factories is conducive to health, and especially to those who are affected with scrofula. Frequently, indeed, when the fathers find their children becoming pale and falling off in flesh and bone, they try to get them employed in these factories, with the view of restoring their health. I have occasion to be much among the people of this locality, and I know scrofula in all its different forms at all periods of life, to be common here. But the young employed at the works are robust and remarkably free from it. I enclose you an extract from the London Medical Gazette for 1842, by Dr. Thomson, of Tillicoultry, upon whom I called to-day. He is an intelligent person, and being the local surgeon under the Factory Act, his opinion may, I think, be of importance. You will find his views in the extract which I enclose, and which I cut out of a newspaper."

To the Medical gentleman named in Dr. Brotherston's letter, Dr. Thomson of Tillicoultry, I am much indebted, as will appear in the se-



quel, for his kind and able aid in the different points of the present inquiry. In the interesting communication of his, transmitted to me by Dr. Brotherston, and originally published in the *Medical Gazette* for 1840, under the title of "The Influence of Woolen Manufactories on Health," Dr. Thomson makes the following remarks relative to the salutary nature of the woolen manufactories upon the health of those employed in them:

**311.** "During a residence of several years in a district where the population is much employed in woolen manufactories, no fact connected with our medical topography has impressed me more than the thriving appearance, and great exemption from disease, peculiar to the children in these mills. So remarkable is this fact, that it has become proverbial; and puny and weakly children, in a very few weeks after entering these factories, exhibit the most marked improvement in physical appearance."

**312.** "In a letter to me regarding the health of the people employed in wool-working, Dr. Patterson of The Bridge of Allen, remarks:

" 'There is but one wool factory here, to which I have been surgeon for some years. While attending to my duties as such, my attention was first drawn to the beneficial effects to the employment in such works. I used to notice children very delicate on entering the mills, become stout and healthy after a short time. It is not exactly a popular notion, that the wool-works are conducive to health, but it is very well known to the workers themselves, so much so, that it is quite proverbial amongst them. The fact is naturally becoming more generally known and believed, as is manifested by parents sending their children who may be delicate, to work in such factories. It certainly does accord with my own experience, that struma, in all its varieties, is rare in such works, and also that a curative effect is induced in those laboring under it, who may be sent to these works. So convinced am I of this, that I have often said to the parents of delicate children, that I wished I could send them to work at the wool-mills. I am not aware whether any of my medical brethren in the district hold similar views with myself on this subject.'

**313.** "Dr. Wilson, of Inverness, writes me in reference to the woolen manufactories in that district, that—

" 'It is a popular notion that the workers employed are peculiarly exempt from phthisis and scrofula. The proprietor and manager of the mills inform me, that they have invariably observed delicate looking and weakly children improve after admission to the works. The manager here has been employed as a woolen manufacturer for thirty years, and cannot recollect a single case of death from consumption among the workers. He has superintended works at Galsburgh, In-



infection, etc., and in all of these places the same opinion prevails as to the exemption of the persons employed from consumption.

“ Dr. Lyon of Peterculter, who has the medical charge of the Garbage Mills, near Skene, in Aberdeenshire, in a letter to Dr. Dyce, with which I have been favored, remarks:

“ For the last twenty years I have had ample opportunity of knowing the amount of sickness about the establishment, and have never seen a single case of phthisis. The average number of young persons is about sixty five, all of them above thirteen years.’

“ The preceding extracts chiefly refer to the health of the working persons engaged at woolen factories situated in our villages, or larger towns, as Hawick, Alloa, etc. Dr. Joseph Bell, one of the medical inspectors of the factories of Glasgow, has favored me with the results of his observations upon the health of the workers at the two woolen factories which exist in his district; and his remarks are important, as showing that this form of labor seems attended with the same sanitary results in cities as in the country.

314. “ ‘There is no doubt in my mind,’ observes Dr. Bell, ‘that the workers in our woolen factories are more robust, florid and healthy looking than those employed in our cotton factories. I have seen several workers enter the wool factories, pale and emaciated, who, having been previously employed in cotton mills, become, in the course of a few months, fat, ruddy, and in every respect contrasting strongly with their feeble, sickly appearance when I first examined them. One woman, who labors under chronic bronchitis, informs me that she is enabled to work in the woolen factory during the winter and spring months, as otherwise her cough and dyspnoea became intolerable. I have examined two other females who exhibited symptoms of incipient phthisis, but after working a few weeks in the wool mills, these symptoms disappeared, and their general health became excellent. Such for my own observations. With regard to the statements of the managers of the wool mills, they affirm that they have never seen any employed in those works die from consumption, and that persons who have the usual marks of scrofula—swelled glands in the neck—when they come to the mill, very soon get cured. \* \* \*

“ My own impression is, that the workers in these wool-mills are less likely to become attacked with scrofula in any of its forms, than the workers in our cotton factories. At all events, there does not exist a doubt but that they have a much more healthy and vigorous appearance.’

315. “ My friend, Dr. Dyce, Lecturer on Midwifery in Aberdeen, writes as the result of his inquiries for me on the present subject, in Aberdeen, and its neighborhood:



"With reference to the extreme rarity of consumption among the wool-mill girls—this is a fact which all here have long been familiar with, so much so, that seldom or never is a consumptive tendency met with amongst the wool mill girls. Any one accustomed to see the women of the cotton and wool mills, can generally tell from their appearance to what mill they belong. The cotton-mill girls are generally, though healthy looking, pale and bleached, or as my friend Dr. Cadanhead, who, as Factory Inspector, has ample opportunities of observing, says they look tropical, as if they had been in a warm climate; whereas the other, the wool girls, are rosy and fat. I am indebted to him also, for another very striking fact in corroboration of this, viz., that he has been in the habit for years past, when in his visits he has noticed any young girls whose looks indicate delicacy, to recommend them to change the mill; and that he has often been surprised to notice the remarkable change that a few weeks work in the wool mill has produced—from the pale, pasty look, they have become healthy and plump. That this is no new observation, I may mention that so long ago as when the late Sir David Barry was here on a government inspection relative to the Factory Bill, he remarked this difference in the looks of the women, and he seemed to think highly of the plan of changing the mill in cases of delicacy."

"I have most kindly received from various other medical gentlemen in other localities, as Kilmarnock, Selkirk, Innerleithen, etc., etc., evidence analogous to that cited above in relation to the superior sanitary state of the woollen-workers in their respective towns and districts, and the comparative freedom of these workers from scrofula and phthisis. But it seems quite unnecessary to lengthen out this communication by merely extending and accumulating testimony of the same description and effect as that contained in the preceding extracts.

**316. II.** *On the Cause of the Comparative Exemption of Wool-workers from Phthisis and Scrofula, etc.*

"The salutary effects of the woollen factories upon the health of those engaged in them, might *a priori* be supposed to depend, and indeed has been attempted to be explained, on different principles, as

1. Their hygienic state has been averred to be possibly the simple result of the healthy and favorable age of the operatives employed.
2. Their exemption from tubercular and other diseases has been ascribed to the sanitary nature of the factory labor itself. Let us first examine these two supposed explanations before proceeding to show the truth of a remaining *third* proposition, viz., that the relative immunity of wool-workers from disease is the effect of salutary specialties con-



ected with the manufacture of wool, and particularly of the abundant use of oil in the wool mills.

317 1. "It has been suggested to me by different medical friends, that the comparative exemption of wool-workers from scrofula and phthisis was perhaps owing to the ages of the operatives, and especially the large proportion of young among them—rather than to anything directly hygienic in the employment itself. The idea forms a reasonable and fair objection, and one certainly demanding inquiry. But the following circumstances will prove that in itself this suggestion affords no explanation of the relative freedom of the wool-workers from consumption and struma, but the reverse.

"The Factory Act strictly prohibits any person from being employed at woollen mills, or other forms of factory labor, under the age of thirteen. In order to obtain a view of the ages of the operatives in woollen factories, Dr. Thomson and Mr. Paton have noted for a long time of life of all the workers employed at four of the largest mills in Tillochcultry and Alloa. The absolute number of individuals employed in these four mills amounts to exactly 1100; and the following table shows the relative ages of these 1100 persons in quinquennial periods up to thirty years, and in decennial periods after that time—

"Ages of 1100 operatives engaged in four woollen mills at Tillochcultry and Alloa.

Under 16 years of age.....	163	30 and under 40 years.....	185
16 and under 20 years.....	282	40 " " 50 " .....	101
20 " " 25 " .....	185	50 and upwards .....	54
25 " " 30 " .....	130		

"Now if we compare this table of the ages of the woollen operatives with the ages of persons dying of scrofula and phthisis, it will appear that in itself the time of life of the operative is such as strongly tends to predispose them to fatal attacks of tubercular disease, rather than to protect them from its ravages. In the latest, and perhaps most valuable, work on Tuberculosis which has yet been published, that of Mr. Ancell, the author gives, in quinquennial periods, a table showing the relative ages of those who die of tubercular disease out of every 1000 individuals who perish under it. Excluding, as not connected with our present comparison, the first two quinquennial periods of life (from 1 to 10 years), it appears that during the remainder of life the greatest number die of tubercular disease from 10 to 14; the next greatest number from 15 to 20; the next from 20 to 25, etc., in the following proportions. Out of every 1000 deaths from tuberculosis, 179 occur among persons from 10



to 15 years; 128 among persons from 15 to 20 years of age; 97 from 20 to 25 years of age; 84 from 25 to 30 years of age; and so on in an uninterrupted and rapid decrement from 25 years and onwards. When we thus compare the ascertained frequency of deaths from tubercular disease at different ages, with the actual ages of persons employed at the woolen factories, it follows that the general time of life of the operatives is such as gives a decided tendency to tubercular disease, instead of accounting, as has been suggested, for their comparative immunity from phthisis and scrofula.

318. 2 "The influence and peculiarities of factory labor upon the operatives have been also suggested by some as the probable explanation of the exemption of wool-workers from tubercular and other disease. The effects of factory labor upon the health of those employed in it have, as is well known, been much enquired into during the last twenty years, and in respect to these effects very opposite opinions have been upheld. It has been maintained by various authorities, that mill working had a good effect upon the health of those employed, in consequence of the regularity of the hours, the constant, yet never violent, muscular exertion necessary for it, the generally superior pay, and consequent good food and maintenance of those engaged in it, etc. Without, however, entering into these questions let me merely remark, that though the evidence adduced before the Government Commissioners and elsewhere, regarding the health of the operatives at the cotton factories of England and Scotland, did not perhaps prove that the workers at these mills were particularly and specially liable to tubercular disease, as was at one time supposed; yet it will generally, I believe, be admitted that the same evidence has as indubitably shown, that the nature of the factory or mill working occupation does not in any degree exempt those engaged in it from consumption and scrofula. In other words, the multiplied testimony adduced regarding the health of the workers at the numerous cotton factories of this country, shows that the mere nature of the work at the mill produces no immunity in those employed from consumptive and tubercular affections; and consequently it follows, that if, in any variety of mill working, such an exemption was found, this exemption could not be ascribed to the mere character of the labor or mill work itself. And when we find that, while the cotton mill workers are not free from consumption and struma, the wool mill-workers are comparatively exempt, we must evidently search for the cause of this difference and exemption in some peculiarities connected with wool working itself.

319. 3. "The great difference and peculiarity in woolen-mills as compared with cotton-mills, consist in the fact, that while the



hours, the occupation, etc., are much the same in each, in the woolen-  
 mill, a very large quantity of oil is used, and the bodies of the work-  
 ers are brought in various ways freely in contact with it. It is,  
 I believe, in this one item that the great difference between cotton-  
 working and wool-working consists; and it is to this material, the oil,  
 which is used in some of the processes of the wool-factories, that the  
 operatives themselves universally, and, as I believe, properly, at-  
 tribute the salutary nature of their occupation.

"In corroboration of the truth of this popular belief that the good  
 effects of the woolen factory labors are ascribable to the oil employed,  
 I wish to state two points, viz., that—

*First.* Similar exemption from scrofula and consumption is ob-  
 served in other classes of workmen whose employment brings them in  
 the same way freely into contact with fats or oils, as tallow-chand,  
 candle-men, etc., and—

*Secondly.* In the wool factories the degree of exemption among the  
 operatives themselves is by no means equal in all the processes of the  
 manufacture, but is regulated by the more or less "oily" nature of the  
 elements of work in which they are engaged in the mills; so that  
 they generally markedly improve in appearance and health when set  
 to work at the more oily processes; and often as markedly decline af-  
 ter leaving them.

**320.** "That the divisions of the wool-workers engaged in the  
 different departments of the manufacture are in a markedly and  
 regular manner exempt from disease, is a point to which several of  
 my correspondents have particularly alluded. Thus, after referring to  
 the comparative health of the weavers, stocking makers, scourers, and oth-  
 ers connected with the woolen trade of Hawick, Dr. Thomson observes:

"It is admitted on all hands that only the mill-workers proper,  
 the *spink*, are supposed to enjoy from their trade any special immu-  
 nity from disease; and these all work among oil in feeding the machine,  
 &c. &c. The other persons comprising the working force of a  
 wool factory, such as weavers, warehouse people, and the like,  
 though certainly a sufficiently healthy class, are not considered more  
 so than the average of workmen employed in other active engage-  
 ments, unless the fact be taken into account that most of these per-  
 sons may previously at one time or another have come under the  
 influence as mill workers."

**321** "On the same subject Dr. Thomson, of Tillicoultry, in one  
 of his letters to me, observes:

"My opinion is most decided, that those woolen workers most  
 engaged in the oily parts of labor exhibit the most marked health and  
 exemption from disease. These persons are called *feeders* and *piecers*,



and of these two classes the *feeders*, who are most oily, experience the greatest benefit. I consider also *spinners*, as more concerned in the oil, to have the advantage over weavers, whose materials are freed from oil. \* \* \* The fine appearance,' he adds, 'of the young workers, their rapid improvement when set to work in oil, their declension when they leave it, the rareness of phthisis and scrofula in them, the notable relief which several patients under mesenteric disease experienced at the mills, their improved aspect, and the abeyance of the disease, leave no doubt on my mind that the oil is the salutary agent.

322. "In order to establish the preceding points with still greater certainty, Dr. Thomson has latterly weighed some of the young workers when first beginning the more oily employments, and he has sent me the following note of one of his first observations:

" 'Jean P.—, æt. 16½, a *feeder* in the mill of Messrs. Harrower & Co., Alva. Four months ago she was carefully weighed, and was only 7 stones weight, two months ago she began to work at the teasing machine, and now she has got so much stouter as to weigh 8 stones, 3½ lbs. This girl was most carefully weighed by myself, Mr. Harrower, and the managers, so that no mistake might happen. She had on the same clothes, etc., as formerly.

323. "As an instance of the declension in weight, following the withdrawal of an operative from the more oily departments of the work, Dr. Thomson describes to me a case, which I will cite in his own words:

" 'Janet R., aged 17½ years, fed the teasing machine before Jean P. (the preceding subject). When doing so, she became so fat as to become a by-word. She does not know how much flesh she gained, but when she left off, two months ago, her weight was exactly ten stones. I weighed her to-day, and find that she has lost seven pounds. She is now working at a different process—not oily.'

"A careful inquiry upon an extended scale, such as begun by Dr. Thomson, of the relative weight of a large number of operatives, for some time after engaging in, and for some time after leaving off, any of the more oily departments of the woollen manufacture, will probably ultimately lead to some interesting details and results.

324. "III. *The Quality of Oil used in the Mills in the course of the Woollen Manufacture.*

"In the woollen manufactures, the wool is beameared and saturated with oil, in order to render its fiber sufficiently pliant and flexible for the purposes of felting, carding, spinning, etc. A large quantity of oil is employed in order to gain these objects. The quantity is regulated by the kind and quality of the wool. I have been assured, in more than one quarter, that it is used in most mills in the



proportion of from half a pound to one pound weight of oil daily, for every workman engaged.

In most of the manufactories the species of oil used is olive oil, or, as it is generally termed, Gallipoli oil, from the district in Italy where it is procured. In some kinds, however, of woollen work, other oils are employed, as sperm or whale oil. These latter are principally employed in mills where only the coarser woollen fabrics are manufactured. The great expense of the oil has of late induced some owners to try the use of milk and other cheap materials.

325. "IV. *By what Mode or Channels may the oil enter the system of the Operatives.*

"In all those apartments in woollen factories in which the fabric is 'fully staged,' the atmosphere is more or less loaded with oil particles, as ascertained at once by the sense of smell on entering such places, and by the oily deposit which covers the machinery, the furniture, and indeed every exposed point and surface. Objects hung up scattered about such apartments, speedily become coated with oil; and those parts of the clothes and bodies of the operatives, that are exposed during work to direct contact with the oily wool, as well as the portions that are not so, thus become rapidly greasy and covered with it.

"Under such circumstances, we may suppose the oil to enter the system of the operatives by one of two channels, namely; either—1, Inhalation through the mucous membrane of the lungs, or 2, by cutaneous application and absorption.

"That inspired gases and vapors readily pass into circulation through the pulmonary mucous membrane, is granted by all. Experiment also shows that some solid substances, when heated and vaporized as opium, iodine, and mercury, can be made to enter the system through the same channel. We know also that volatile oils, as turpentine, juniper, copaiba, etc., when breathed, reach the circulation, and are subsequently very speedily found in the urine. \* \* \* But direct and indubitable proofs of this mode of entrance of fixed oils into the body are still wanting.

325. (a.) "In all likelihood the more important, if not the only channel by which the oil gains access to the system, in the case of the woollen operatives, is by its cutaneous application and absorption. As already stated, the dresses of the operatives soon become imbibed and saturated with oil, and their heads and arms are constantly smeared with it, during their working hours. Medicated substances thus applied, with sufficient freedom and friction upon the skin, pass into the system. Even 'metallic preparation'—to quote the words of Prof. Murrer—'rubbed into the skin have the same action as when given



internally, only in a less degree. Vegetable matters also,' he adds, 'if soluble, or already in solution, exert their peculiar effects through the medium of the skin.' \* \* \* In the living human subject, we can readily gain clinical proof of the facility with which warm oil can be rubbed into the skin, by watching the rapidity with which the liquid disappears from, and is absorbed from the surface of those who use oil frictions, and particularly in the case of such persons as have followed the practice for a considerable time, and in whom the power of cutaneous absorption is hence increased. Besides, we have a further proof of this cutaneous absorption of oil, in the fact that those who use oil frictions, show exactly the same special constitutional effects from this mode of introducing it, as those who introduce the oil into the system by swallowing it.

**326.** Those interested in this important subject will not tire in reading these extensive but instructive extracts from Dr. Simpson's article, nor can they fail to see that the intimate relationship between the surface of the body and of the mucous membrane has been repeatedly proved. Every reader must see, as I have stated, that this article supplemented Dr. Troy's article, and must see that as the skin returns to its healthy action, so does the mucous membrane and resume its normal action.

**327.** After reading this article of Dr. Simpson's, I resolved to try the effects of applications of an oil on a patient, I then had (1859) under my care, one that I had diagnosed as suffering from acute phthisis. The effects of the inunction was all that could be desired. The profuse night sweats were at once lessened, and after the fifteenth nightly application, entirely checked. This with the exception of taking aconite and quinine, was all that was done for him; these he had been taking for nearly two months previous to the application of the inunction, showing that the application of sweet oil—the inunction then employed—was the effective agent. The patient slowly recovered, made a trip to Pike's Peak—at that time a place of great attraction in the west—and is at present living in Wisconsin, in robust health.

As already stated, the result of these inunctions prove the very close relationship that exists between the surface



of the body and the respiratory mucous membrane. But not at this time, and for nearly twenty years afterward, although employing oil applications systematically, I did not know the rationale of the treatment.

**328** The article that gave me a clearer insight to the subject, and demonstrated a necessity for a relationship between these two surfaces, was from the pen of Dr. T. Lauder Brunton, of London, published in the periodical known as *Brain*, in July, 1878, page 143; on "REFLEX ACTION AS A CAUSE OF DISEASE AND A MEANS OF CURE."  
He says:

**329.** Reflex action is the effect produced by an impression made upon a sensory nerve [located on the surface of the body], transmitted by that [afferent] nerve to a nerve center [one of the cerebral sympathetic ganglia], and reflected or thrown back along a motor [efferent] nerve [to the mucous membrane of the nasal passages] in the same way as we may imagine the force to be which is applied to one end of a string running over a pulley and transmitted in a different direction by the other end to produce a certain effect. If we may fancy the further end of the string to be divided into several parts, each of which is attached to a different object, and which may be, separately or together, affected by a pull on the nearer end of the string, we shall form a still more definite notion of reflex action, for an impression made upon the same sensory nerve may produce various results, according to the strength of the impression and the efferent nerve channel along which it is thrown back by the nerve-center. An impression made upon a sensory nerve, for example, may produce motion of either a voluntary or involuntary muscle, or may affect the nutrition of a tissue. Under the head of involuntary muscles we must class the muscular fibres of blood-vessels, and those vascular changes which in themselves play a great part in nutrition and secretion may be very greatly influenced by impressions made upon sensory nerves. \* \* \*

**330** "We will now say a word about the transference of impressions, just as we may imagine the further side of the cord run over the pulley to be divided into different strands, while the nearer side is single, and as we imagine different results obtained by pulling upon the single string by reason of those subdivisions at its other end, so we may have the nearer end of the cord subdivided into strands, while the further end is single, and thus we can obtain a similar result by pulling any one of the strands on the nearer end.



This simile may serve to illustrate the way in which we may obtain a similar result by irritation of various efferent nerves, the stimulation being conveyed to the nerve center and reflected down the same efferent nerve in each case. \* \* \*

**331.** "With these general remarks on reflex action and transference of impressions, we will now proceed to consider some cases in which **reflex action is a cause of disease**. I have just mentioned one instance in which intermittent spasms of a voluntary muscle, the orbicularis palpebrarum, was caused by irritation of the sensory nerve. This leads me to remark that a very important condition to be borne in mind is that constant stimulation of a sensory nerve will often produce clonic or intermittent, and not tonic or continuous, contraction of the muscles which it may set in action.\* It was observed by Nothnagel that if the sciatic nerve of a frog's leg was subjected to constant stimulation under certain conditions, the contractions which it induced reflexly in the other leg were intermittent or spasmodic, but not continuous or tetanic. Another instance in which voluntary muscles are reflexly affected is seen in the act of coughing and vomiting. Coughing is adapted for the purpose of expelling irritating substances from the respiratory passages, and thus preventing their injuring the organism, just as the act of winking is adapted to remove injurious substances from the eye.

**332. Reflex Coughing.** "Coughing is usually excited by irritation of the nerves of that part of the body from which the irritant is to be removed. But coughing, like winking, may be reflexly induced by other nerves than those which usually excite it, and thus may prove hurtful instead of useful. Thus, in pleurisy, irritation of the pleura causes the same expulsive effort as a foreign substance in the bronchi, although those efforts can expel nothing, and only cause pain to the patient; and even when the act of coughing is induced from the ordinary nervous channels, but where the irritant, like tubercle in the lungs, cannot be removed, the act is likewise injurious. \* \* \*

**333.** "Irritation of the pharyngeal branches of the glosso-pharyngeal and of the pulmonary branches of the vagus, irritation of the hepatic nerve by the passage of biliary calculus, irritation of the renal nerves by a calculus resting in the kidney or passing down the urethra, irritation of the intestinal nerves (as, for instance, by incarceration of a hernia,) irritation of the internal nerves by the presence of a fetus in the womb, or of the ovarian and vesical nerves by inflammation of the ovaries or bladder, may all produce vomiting; and in all, or nearly all, those cases, efforts at emesis will be productive of no beneficial result.

\* This remark of Dr. Branton's should be remembered when studying the etiology of fluctus aurium.



334. "The researches of Sanders-Ezo have shown that stimulation of certain sensory nerves, or of limited districts of the skin, will induce definite muscular action due to contraction of limited groups of muscles. It is probable that irritation of limited districts of the skin also induces contraction of limited groups of involuntary muscular fibres or of limited districts of vessels. It is well known that tonsillitis is much more frequently produced by exposure to a draught which strikes the back or side of the head than by a current of air meeting the face, or even by long continued exposure to a storm in open air. The cause of this has not yet been satisfactorily ascertained but it has been attributed with some probability to irritation of the nerves of the ear by the cold current of air. When the throat is irritated, the irritation is not unfrequently felt in the ear; and vice versa. It seems probable that irritation in the ear may cause alteration in the throat. It has been observed that pressure upon the floor of the external and auditory meatus in a person who had suffered from hemorrhoids produced violent or uncontrollable coughing; and if irritation of the ear thus produces a motor reflex like that of irritation of the larynx, it seems probable that it may also produce a reflex disturbance similar to that which would have followed the direct application of an irritant to the larynx.

335. "We have, so far, been dealing chiefly with reflex action as a cause of disease, but now we must say a word or two respecting the **transference of impressions**. It is well known that persons who have had their legs amputated often complain of cold feet or of pains in their toes, on change of weather. The irritation here is really in the end of the divided nerve in the stump. But the brain is accustomed to refer all impressions made upon a nerve during its course to the terminal filaments from which impressions usually come, just as we feel a tingling in the fingers when we pull upon or jar the ulnar nerve, or, as it is popularly termed, the funny bone. In disease of the hip, the irritation is felt, not so much in the hip itself, as in the knee.

336. "Having said so much on **reflex action** as a cause of disease, we will now consider it as a **method of cure**; and the first instance that suggests itself to our minds is the beneficial effect of a blister. Two theories have been proposed to account for the action of a blister. One is, that it dilates the vessels of the skin in the part to which it is applied, and by thus drawing away some of the blood from the inflamed organ below, lessens the pain and inflammation in the organ. The other theory is, that the blister acts reflexly upon the organ itself. The first of these suppositions is very improbable, because the amount of blood in the skin covered by a blister is exceedingly small, and, moreover, does not come from the inflamed organ, with which the



blistered piece of skin may have little or no vascular action. The second theory is much the more probable one, but it is not yet certain how the vessels of the inflamed organ are affected by the blister. We do not know whether they are dilated or contracted. It is most likely, however, that they are contracted, the contraction lessening the pressure of blood upon the inflamed tissues, and thus diminishing the pain in somewhat the same way as we relieve the throbbing in an inflamed finger, by holding the hand above the head, or by compressing the brachial artery. This is rendered probable by the experiments of Zulzer, who found that when a blister was applied to the back of a rabbit for a length of time, the skin and the muscles immediately below it were red and congested, but the deeper layers of the muscles, the pleura and even the lung on the same side, were pale and anæmic."

337. According to Dr. Brunton's views, and he is sustained by a large number of observers, the sympathetic nervous system has a much greater control of the capillary circulation of the mucous membrane than is mentioned in any work on respiratory diseases. It is also evident that the effects of colds are transferred by the sympathetic nerves from the skin to the capillaries of the mucous membrane of the air passages, and if this is inflamed for a number of years, it will reflexly, go back to the skin from the nerves of air passages, as we see in the dry, scurfy skin of the consumptive—spoken of by Dr. Troy, in topic 304. --and in the enlargement of their finger nails, known as club-nails.



## CHAPTER XII.

### THE GRADES OR PHASES OF CATARRHAL DISEASES OF THE AIR PASSAGES AT DIFFERENT AGES.

**338.** Strictly, the etiology of the disease called "cold," varies with the age and temperament of the patient, merely because the disease assumes different grades or phases as age advances. The liability to take "a cold" is constantly in a certain relationship to the degree in which the mucous membrane is inflamed. In the infant the mucous membrane is in a healthy condition; in the patient who is over forty years of age, the same membrane is in a very much inflamed condition. It is evident that the degree of exposure necessary to produce inflammation in these two persons will differ widely: it is equally evident that they must exhibit very different grades of inflammation, and have just as different subjective and objective symptoms. Of course it follows that the treatment of such patients must be varied with the varying grades of the disease.

**339. Five grades of rhinal inflammation.** I think it will materially assist in the elucidation of this subject to divide the disease into five grades. Not only will this division be useful in its etiology, but in its symptomatology and treatment also. I do not mean that there are five different kinds of colds, but that there are periods of life in which colds are due to different causes, intrinsic as well as extrinsic, having different symptoms, and requiring different methods of management for its relief.



The **FIRST GRADE** embraces the period of life from infancy to the third year of age.

The **SECOND GRADE** embraces from three years to ten years of age.

The **THIRD GRADE** from ten years to twenty years of age.

The **FOURTH GRADE** from twenty years to forty years of age.

The **FIFTH GRADE** from forty years of age and upward

**340.** In the earliest grade a cold that manifests objective symptoms of the nasal, pharyngeal or aural mucous membrane, is taken under one of the following conditions:

1st. There must be an exposure of a portion of the integumentary surface of the body to a temperature lower than the normal temperature of the body; or.

2nd. If the temperature of the body has been raised by artificial means, such as clothing, baths, etc., to the extent of producing perspiration, then a sudden exposure of the surface of the body to a temperature of even a few degrees cooler, will produce an inflammation of the mucous membrane of the nasal passages, especially; or.

3d. In the case of infants, especially those not older than a few weeks, inspiration of an atmosphere of 10° to 20° colder than the normal temperature of the nasal passages, for a long enough period to reduce the temperature of the mucous membrane affected by the air, will produce sufficient irritation to give rise to the phenomena of a cold. The sensory nerves of the mucous membrane, which are afferent, produce their effect on the sympathetic ganglia, and the vaso-motor nerve leaving these ganglia, which are efferent, induce dilation of the arteries of the mucous membrane.

These three conditions are sufficient to account for every cold up to the third year of age. The only modification to these conditions is the temperament of a child. This will have a marked influence on the liability



to take cold. A child with light, flaxen hair, will take cold very much easier than one of black hair. Black hair indicates a strong integument and a comparatively strong mucous membrane, both of which withstand the ill effects of low temperature in a remarkable degree.

341. It is quite popular to account for some colds, especially in children, through inheritance of the disease, because of the commonly observed occurrence of nasal catarrh in infants of even a few days old, as I have mentioned in another portion of this work. The failure to see any other cause for the excessive amount of secretion, led those, who believe in the heredity theory, to account for it in this way. But a close examination of the kind of care given to such children, will show that there has been very frequent opportunities to take cold, previous to the appearance of catarrhal secretion. One author on Diseases of Children, takes the ground that the child's organs were in an abnormal condition before birth.

If this were the case, the children inheriting faulty organs, must necessarily always have been subject to severe catarrh; that is, must have been so from the beginning, and not only this, but they must always remain in this condition, since nothing can be done to improve them by any kind of medical treatment. They need not, however, get any worse, just as those inheriting light hair, will always remain liable to catarrh. In the matter of improvement, they are in the same condition as the child born with any other physical disability, such as a loss of a hand or an eye, for whom nothing can be done to improve their physical condition.

342. According to this author, a patient may possess a catarrhal diathesis, just as he may possess a weak skin or mucous membrane. This is an assertion that cannot be proved. There is not any doubt that a person may possess a weak skin, and because of this weak skin may acquire corns on his feet; in other words, he may inherit a weak skin, but not the corns, as these come



from wearing misfitting boots or shoes. So may he inherit a weak mucous membrane, but he acquires his catarrh **he cannot inherit a catarrh any more than he can a corn on his foot.** If he inherits the one he must inherit the other. Some persons may say that it amounts to the same thing, because a weak mucous membrane acquires catarrh. Not so, by any means. An individual knowing that he has inherited a weak mucous membrane and a weak skin, will be much more careful to avoid exposures that would induce a catarrh, nor will he wear boots or shoes that will produce corns.

**343.** No, it does not require the mystery of heredity to account for nursing children being subjects of severe catarrh. But what is needed, is accurate observation to see the causes of the attacks of catarrh, in the almost universal custom of allowing children's heads to be uncovered both day and night; in the fact that a child's body is "bundled" with clothing, to the extent of inducing great exhaustion from profuse perspiration, so that if it is taken out for a much needed walk, it must take cold, because of the perspiring condition of its body, and in the fact that it does not have pure air to breathe.

**344.** What evidence we have that this universal exposure does take place in infancy? The objective symptom of nasal secretion seen in the nostrils of almost every infant, and the fact that the parents, of children affected by catarrh, had, for a long time, seen nasal secretion flowing from their nostrils.

Opportunities are not wanting, through the ignorance of the doctor as well as the parents, for a child to take cold. But these colds are almost universally unobserved even by intelligent persons, even by intelligent physicians. Certainly the laity are excusable for not recognizing them under these circumstances.

**345.** Dr. A. von Troeltsch, of Wurzburg, in his work on "Diseases of the Ear in Children," says:



"In fifty-seven petrous bones taken from twenty-four unselected infants, I found the middle ear normal in only eighteen; the other twenty-nine showed in various degrees the appearances of a purulent catarrh of a mucous catarrh. Masses of pus filled the cavities so that the loosened and hyperæmic mucous membrane left any cavity; the tympanic membrane was never perforated. Venous hyperæmia and congestion of the brain were always present when that part was exposed."

"According to Schwartz (1861), for every five examinations of newborn children, in two the tympanum will be filled with pus."†

346. "Wreden (1868), found in eighty ears a normal middle ear in fourteen, while purulent catarrhs existed in thirty-six, and simultaneous catarrh in thirty; in four of the cases pus was also present in the labyrinthian cavities. In most of the cases the accounts of the cases showed, in addition to the pathological condition of the middle ear, a marked disease of the respiratory organs (pneumonia thirty-six times, atelectasis congestiva sixteen times, etc.); but hyperæmia meningea was also found eleven times, œdema meningum eight times, meningitis suppurativa three times. As an explanation of the pathological condition in the middle ear, Wreden also called attention to the influence which obstructed or weakened respiratory currents or disease of the pharyngeal or nasal mucous membrane exert upon the middle ear, and also to the intimate anatomical connection which exists between the cavities of the skull and the tympanic cavity."‡

The greatest number of investigations have been made by Froelich (1872, 1875). From about two hundred and thirty accurately described cases, the ages of which varied between a few days, and seven months, the tympanic mucous membrane was normal in thirty, in fifty it showed either a slight or intense catarrhal inflammation, and in one hundred and fifty the tympana were filled with whitish green pus, with occasional groups of mucus mixed with pus. In four of these cases of purulent inflammation, the pus was of choroid character."\*\*

347. These are very astonishing results, and were it not that they are the results of the labors of prominent investigators, they would receive but little credence in

† Froelich, p. 39.

‡ Froelich, p. 10.

§ Froelich on the Ear, p. 40.

\*\* Froelich on the Ear, p. 11.



this country, especially among those who pay little attention to the symptoms of the diseases of early childhood. All of these ears were taken from bodies of children who died of undiscovered ear trouble. These facts suggest an unpleasant thought, namely: the great probability that a majority of infants die of undiscovered catarrhal troubles and its sequences, which could have been obviated had the parents and physicians been aware of it.

**348.** In whatever way the undue exposure came about—for it is always an exposure—we have a normal state of the system to begin with and, consequently, a normal temperature of the surface. These surfaces, integumentary and mucous, are lowered in temperature to the degree of producing an irritation of the sensory nerves, which, in turn, produces an effect on one of the cervical ganglia and these again, through their efferent nerves, occasion a paresis of the vaso-motor nerves that surround the blood-vessels, thus producing hyperæmia and the phenomena of a cold. If the blood-vessels in the mucous membrane have not completely recovered, that is, have not returned to their normal diameter, the membrane is made abnormally weak by the continuance of the inflammatory process. In such cases, if another exposure takes place, the phenomena of a cold will manifest themselves in a much shorter period of time, and there will be a proportionately greater degree of inflammation and, consequently, a still slower return of the normal condition. The pathological process, just described, originates from a physical cause; low temperature alone. This alone produces the inflammation of the mucous membrane of the nasal and other passages.

**349.** It is seen that "taking cold" occurs either through the skin or the mucous membrane. If an infant's body is submitted to a bath of water that is but little colder than its body, or when it is bathed in warm water and dried with a cool towel, or if its body is exposed, after a hot bath, for a few minutes to an atmosphere of 10° to 20° cooler than its body—which happens with



almost every cold—the cold comes through the skin. Its sensory nerves of the integument, through one of the cervical sympathetic ganglia, allow the arteries of the mucous membrane of the air passages to become dilated; the dilation being, at first, a hyperæmia only. If this nervous impression is maintained but a few days, the mucous membrane is then considered in an inflamed condition.

350. The inflammation of the mucous membrane may also be brought about by the direct irritating effect of impingement of cold air upon the delicate Schneiderian membrane, when it is inspired into the nostrils. In such cases the sensitive nerves of the mucous membrane communicate with the cervical sympathetic ganglia through afferent nerves, which produce dilation of the arteries of the mucous membrane of these passages. In all cases the inflammation, whether brought about by direct application of a cold current of air to the mucous membrane of the nasal passages, or by its contact with the integument, has the same effect on the patient and produces the same consequences.

351. The secondary effects of colds. I believe that it will be found that almost every catarrhal patient, at three years of age, who is continually under the influence of catarrhal inflammation, took the first colds in early life, and that these colds—taken in this first grade or degree—produced impressions on the nervous and circulatory systems of both the mucous membrane and skin that lodged them, so that future colds do not exhibit the same phenomena as the first colds did, nor are the future colds brought on by the same kind of exposures.

352. The skin is, in a great majority of instances, the first to transmit a cold to the mucous membrane, but it then turns becomes affected, because of the diseased condition of the mucous membrane. That is, an inflammation of the mucous membrane which was inflamed secondarily,



is primarily the cause of the disease in some other part of the organism, which is secondary to the disease of the mucous membrane. This peculiar relationship of catarrhal inflammation to different parts or organs of the body runs through the whole of catarrhal disease. The following case will illustrate what I have just said:

Mr. H—, aged about 32 years, a lawyer by profession, consulted me about his catarrhal condition. He does not remember the first symptoms of his complaint, as they run too far back into childhood. He had all the symptoms attending catarrhal inflammation of the nasal passages and most of the passages connected with them; for which he was treated for about six months, with the result of being relieved of every catarrhal symptom. The first treatment was given in the spring of 1876. He received a few treatments each fall and spring, until the fall of 1879, at which time he had a severe attack of pneumonia, making a very slow recovery. Since this time he has received fall and spring treatments, but has never completely recovered from the pneumonia. The whole surface of his body is now dry and scurfy. He has marked evidences of renal disease, and within the last year and a half his finger-nails and the ends of his fingers have assumed a marked club shape.

353. The conditions upon which a cold may be taken in the **second** and **third grade**, do not differ very materially from those mentioned in the first grade. The principal difference being that the mucous membrane has attained a degree of resistance that can withstand the contact of a cold atmosphere without showing so much sensitiveness as at an earlier age. At the ages from 10 to 20 years, especially, the mucous membrane shows much greater anatomical changes, demonstrating plainly that the patients have passed through the earlier grades, showing that each successive grade assists in forming the next succeeding grade. the conditions for taking cold are varied by the severity of the pre-existing inflammation,



and the more severe the inflammation the greater space of surface involved.

**354. Fourth grade, aged from twenty to forty years.** In this grade the patient is thoroughly cognizant of taking cold, but is frequently unable to account for the origin of the attack, showing that the surface of the body, the skin, has now come under the influence of the mercurial inflammation of the mucous membrane. Another peculiarity of this grade is that many times when they are exposed and are almost certain that they will take a cold they are agreeably surprised to find, as time passes, they have escaped, showing there is a mental element preventing colds. This mental element will be seen connected with many of the symptoms of catarrh in this and the succeeding grade. In this grade, as in all others, at the first, the inflammation of the mucous membrane of the air passages, and, in many cases, the integument of the nose and ears, indicates that the patients have passed through the three previous grades.

**355.** The following question is frequently asked: Why is it that a person, in this grade, one day experiences symptoms that indicate that he has taken a cold, after being exposed to a temperature that on previous occasions would not have produced the symptoms?

The answer to this question will also answer the following one:

Why is it that if a person with weak eyes experiences symptoms of irritation, occasioned by light, that he would not have experienced on another day, yet the strength of the light being the same on both days?

**Or, in answer to the following:**

Why is it that if a person—who has been, every now and then, on a sick bed for a number of years—plunges his hand into quite warm water, experiences symptoms of scald on one occasion, when on another day he dips his hand into equally as hot water without producing the same inconvenience?

**Or, in answer to the following:**



Why is it that a man in running up a flight of twenty or thirty steps, becomes much shorter of breath and causes much greater agitation of his heart on one day than it did on another day, when he went up much faster?

Or, in answer to the following question:

Why is it that a man on retiring to bed one night cannot sleep as well as he did several nights before?

The answer to these questions, is, that some one of the important organs of the system gets out of order — without any accompanying sensations to indicate it — from a cause or causes not observed by the sufferer; the only evidence of the “out of order” condition being the exhibition of one of the weaknesses mentioned.

**356.** In the **fifth** grade patients do not complain of the effects of acute attacks of colds, as do those in the earlier grades. The surfaces have now taken on an anæsthetic condition and, consequently, the subjects are unconscious of the immediate local effects of a cold.

In this grade the integumentary covering of the body has become still more effected, secondarily, from the diseased mucous membrane of the air passages, as is shown by its being far more sensitive to cold, damp air. But the acute symptoms of catarrh of the mucous membrane are not mentioned. What they complain of most is the effect of the disease on the system generally, that is, the secondary effects of chronic inflammation of the air passages.



## SECTION V.

### Symptomatology of Catarrhal Diseases of the Nose, Throat and Ears, and of other Dis- eases that are Sequences of them.

The massing together of the symptoms of these catarrhal diseases will be mainly useful in showing marked contrasts between the various grades of the inflammation; a knowledge of which is essential to a correct diagnosis and prognosis. Those who have not made catarrhal diseases a study, will be astonished at the great difference manifested by the different grades or stages of the inflammation; yet, this inflammation—chronic catarrhal—is always spoken of, by authors, as though it was a complaint of uniform characteristics, manifesting uniform symptoms, whether it affected the victim in infancy, youth or old age. It is evident, that if this disease does vary with these different ages, the treatment must vary also.



## CHAPTER XIII.

### THE SYMPTOMATOLOGY OF THE FIRST OR FORMATIVE GRADE OF CATARRHAL INFLAMMATION; OCCURRING FROM INFANCY TO THE THIRD YEAR OF AGE.

**357.** The earliest manifestations of a cold in the infant, are increased flow of apparently normal mucus, and a slight increase of the color of the mucous membrane of the nasal passages. This is soon followed by the membrane becoming more or less thickened.

From this stage the morbid processes are characterized by conditions that are apparently very diverse. Sometimes the papillae of the mucous membrane are temporarily enlarged, producing an irregularity of surface. Sometimes the character of the inflammation is still more intense, an exudation of serum—as described in topic **234**—into the surrounding structure is seen to take place, producing what is known as oedema of the mucous membrane itself. Even after diseased action of this intensity (provided that no organs vital to the child's existence are involved), the inflamed parts will regain their normal condition, for the reason that the inflammation, while of so severe a type, must necessarily be of so short a duration that it cannot produce any permanent change in the mucous membrane, since permanent changes can be the result of only a long continued inflammation of a low grade of intensity.

**358.** If the nurse has not taken notice of the infant's



swelling, or has not observed\* the secretion flow from its nostrils, the first symptom of the disease that may attract the attention of the mother, will be the fact that the child cannot breathe through its nose, and not being able to do so, cannot nurse longer than it can hold its breath.

359. Of course a child in this condition must breathe through its mouth both day and night. This will soon cause a swelling of the tonsils, and a liability to attacks of croup. It should be borne in mind that a child never loses a habit of breathing through the mouth; since *mouth-breathing is always a necessity*, arising from partial or complete closure of the nasal passages by catarrhal inflammation of the mucous membrane lining them.

360. Occasionally, a child is seen that has been breathing through its mouth nearly or quite all its life. These sufferers usually have acquired a peculiar physiognomy, but this peculiarity is due to the results of nasal disease, and not to mouth-breathing, *per se*.

361. **Inflammation of the middle ear** is far from being an uncommon complaint in infancy. Investigations, made by a large number of physicians, show that ear trouble of the young—even those who are but a few months old—is the cause of more intense suffering, and a larger percentage of deaths, than other infantile diseases. See topic 345.

362. This may strike the ears of some general practitioners harshly. Why so? Because they have not observed that it is the case, or have given the subject but little, if any, thought. They would be a little more watchful of their little sufferer's progress, their ignorance of medicine would not be so liable to be pleasantly "shown up" by an inquiry of the mother of a child—*as actually happened to a practitioner of small reading and large brag*—like the following:

"Baby is very much better this morning, doctor; but, oh, his ear is still sore, doctor! What shall I do for it? Shall I give him any

\*There is a great difference between observing and seeing; many things transpire that are not observed although they are seen.



more of the colic medicine, or the quieting medicine? I do hope don't want to cut his gums again."

The opening of such a masked battery ought to fire any man of a family practice, when it is known that the child was suffering from a severe ear ache.

This child had tossed and rolled its head about on the pillow and every once in a while uttered a louder scream than its usual then threw both of its hands up to its head and took hold of its

**363. Deafness is seldom observed in this grade** for the reason, that the secretion in the pharyngo-nasal cavity is quite thin and profuse and quickly occludes the Eustachian tube, which, in turn, causes excessive concavity of the membrana tympani, and consequent acute inflammation of the mucous membrane of the middle ear, resulting in rupture of the drum membrane, in fortunate cases. The external parts of the ear are nearly always reddened.

**364. Instead of perforating the membrana tympani,** the inflammation may extend to the mastoid cells, or the internal ear; if the latter occurs, convulsions, with strabismus, are sure to supervene.

In otomastoiditis, the mastoid process becomes more rounded, swollen and reddened, and the pinna of the ear a little more projected than usual, and more on one side than on the other, unless both sides are equally affected, developing a complete mastoiditis. If the mastoid inflammation is not very severe, and is maintained for a long time, the pinna of that ear may be permanently thrown forward, giving the child an awkward appearance, and making the ears look larger than natural.

If the inflammation attacks the **internal ear** through the fenestra rotunda or ovala, the child may have strabismus, because of the irritation of the sixth pair of nerves, which supply the internal recti muscles, receiving a branch from the facial or seventh through this nerve, as stated in topic 102. Many physicians have considered strabismus in such cases as an evidence of brain involvement, but this is a serious mistake.



## CHAPTER XIV.

### ATOLOGY OF THE SECOND GRADE OF CHRONIC L INFLAMMATION; OCCURRING FROM THE AIR TO THE TENTH YEAR OF AGE.

In this grade, as in the first, patients are not conscious that they are suffering from the effects of a cold. They are not conscious of any exposure that would result in a cold being taken. They are ignorant of the serious consequences of exposure to a low degree of temperature. I have never known of a child at this age to say that it has taken a cold. They do not know the full meaning of the expression, "taking a cold." They will know whether they have or have not been out-doors without the required overclothing; they do not know if they have been chilly in a cold room or hall, in a wagon or carriage; but they cannot give one subjective symptom of a cold, such as is so frequently given by those who are ten to twenty years older; and, with any of them, were it not for the objective symptoms, it could not be known that they had taken a cold. But on examination of the nasal and faucial passages, after the mucous secretion is removed, a degree of inflammatory action is seen, that indicates that colds must have been taken for several years.

**366.** The **tonsils** are usually the first organs to become enlarged. The enlargement is sometimes merely swelling from blood-distension, but it may also be from hyperplastic growth. A short treatment will prove which of these is the cause of the enlargement. If it is from pro-



lification, treatment will not completely reduce it to its natural size, if the enlargement is a swelling merely, a few treatments will do so.

The enlargement nearly always changes the tone of the patient's voice, so as to resemble one speaking with a mouth full of food.

The fact that colds have been taken for several years — as indicated by the inflamed condition of the mucous membrane — proves that the grade of inflammation must have been so mild in character and so slow in its course that the earliest symptoms had passed unobserved by either parent or patient. This is known by the latter not having any disagreeable sensations of which to complain. The symptoms, if any, will be noticed by the parents, not by the child. The parent may observe the child breathing with its mouth open, or that it may require the frequent use of a handkerchief to free its nasal passages, but the greatest hardship the child experiences is the act of blowing its nose in obedience to the parents' direction. I do not say that some of them do not have headaches and earaches, and severe ones too, but this happens in one instance out of 20 or 30 cases. When the secretions in the nasal passages are very profuse or if the mucous membrane is excessively swollen, a nasal tone is imparted to the voice.

**367.** In case of paralysis of the soft palate the muscles of the nares are brought into unusual activity, showing that these muscles, as well as those of the vocal cords, are governed by the same set of nerves. The nasal muscles that appear to be the most active — named in the order of their greatest activity — are the depressor alae nasi, dilator naris posterior, dilator naris anterior and the compressor naris.

**368. Mental symptoms** are not frequent in this age, but they occur in about one percent of this class. They are shown by the display of a most violent and unreasonable temper; a determination to injure some one and destroy objects around them. I had one patient, only three



years and a half old, who exhibited such blind passion, that she did not feel the effects of a burn on the back of the hand from hot coffee, although it was severe enough to raise a blister nearly one inch wide and two inches long, she having upset the coffee pot in her passionate endeavors to destroy the dishes on the table.

**369. Night Fright.** This nervous affection is, in my opinion, due more frequently to catarrhal inflammation of the nasal passages than to any other cause. Many authors give indigestion as a frequent cause; but this itself is almost alone a sequence of the same inflammation.

**370. Pyrophobia,** dread of fire. I had one patient who could not look on the blaze of a fire, or even of a lamp or gas-light when alone in a room. This fear rendered her far more severe at such times as she had a cold in the head and ears. On one occasion the gas got burned so high that it made a roaring noise. This set the child nearly wild with fear, which was not quieted for fully an hour.

**371. Chorea.** This is not an unusual complaint even in this grade of catarrhal inflammation; but it may also be observed up to the age of twenty years. If seen in cases older than this it indicates that their catarrhal inflammation had not been very severe in childhood.

There is no better way to give the symptoms and development of a case of chorea than to present the history of a typical case:

**372** The patient was a girl nine years old; light red hair; small for her age; permanent teeth and very irregular, with a ridge near the cutting edge, indicating, according to my observations, that she had, when an infant, a very severe attack of sickness at the time of life when these teeth were forming. Her mother said that the child had always been delicate, and had secretion running from her nose since early infancy. Her tonsils were enlarged. About three months before she was brought to me, she took a bad cold; had pains in her limbs, back, head, and especially her left arm; the hand of this side was swollen, and very sensitive to the touch. At this time she was compelled to remain in bed for nearly a week. After she got out of bed, she lost her cheerfulness and was dull, but



very easily startled by any sudden noise, as the slamming of a door, even when she saw the door close. About this time she acquired the "habit" of dropping small objects from her fingers, a symptom of catarrhal disease that was brought to my attention by Dr. P. W. Logan, of Knoxville, Tenn. The mother noticed that after the slamming of a door, the child's head was apt to jerk or twist, at times; then her left hand—the one previously affected with pain and swelling—would jerk, then her left foot, then the muscles of her eyes and mouth and nose. This spasmodic action continued for some weeks, when she was frightened by a small lap-dog barking at her, the effect of which was a twitching of almost every muscle of her body. This occurred in the evening. As soon as she fell asleep, the spasmodic performances of her muscles ceased entirely. That night she slept the whole night; but on awakening in the morning the choreic spasms commenced. The motion of her hands, jaws and head was so severe that her speech was unintelligible to every one around her.

The family physician was called in, and treated the case for several weeks; prescribing laxatives and quinine which improved her condition.

When I saw her first, she was in bed, her head was turned to the left side, but as soon as she observed me looking at her, she commenced to rotate her head from side to side, but never reaching as far toward the right side as toward the left. Her eyes were both moving from side to side; her mouth opened and shut with a jerking motion, and the corners would twitch when the mouth did not open. She held one hand clasped by the other, apparently with the object of preventing them from being thrown about. Her legs were crossed and her feet extended, and toes turned downward; the muscles of the calves of her legs were continuously contracted, but constantly jerking. The left arm and the left leg were the most unruly. I asked her to sit up in bed, but she could not do so. When she was under the observation of a person strange to her, all her movements were much increased. Her manner of talking was sudden or explosive. Her pulse could not be counted. The heart sounds were far from normal, and the pulsations were irregular. Her bowels were habitually constipated, sometimes not moving but once a week.

**373. Ear troubles** are common in this stage, but they are mostly of an acute character, such as excessive pain in the middle ear and mastoid cells. The consequent deafness that follows middle ear troubles, is usually suddenly relieved by the air douche, and most of the cases affected by mastoid inflammation are relieved by freely



lifting the skin and soft parts over the mastoid process and to the bone.

**374.** In this stage we see most of the cases of **cerebro-spinal meningitis**. It is my opinion, that frequent recurrences of catarrhal inflammation prepare the patient for an attack of this disease, and that this disease is more common than has been supposed.

Goodhart\* places catarrhal diseases at the head of the causes. He says "Cause for acute meningitis is to be found abundantly in cases of the ear and nose, and in the exanthema." The exanthematic diseases are almost never fatal, if the nose, throat and ears of the head are not involved. This author makes "no distinction between meningitis of the brain and that of the cord."†

This is a disease more frequently seen even in infancy than comparatively seldom after the tenth year of age.

**375.** The symptoms are many times so obscured as not to be seen until the complaint has made fatal inroads on the meninges. The complaint always commences with a chill, and some fever. About the first symptom that is diagnostic is the cervical opisthotonos. This is a not failing evidence of meningitis. I have seen cases that exhibited the cervical contraction much more in the evening than in the morning, showing that it may take an intermittent character. The head is retracted; the countenance is pale, and the little sufferer will now and then utter a peculiar scream, if moved; its abdominal muscles are contracted, so that the abdominal surface sometimes becomes quite scaphoid in shape, and the bowels are constipated. The urine is scanty. The limbs are stiff in many cases and there may be convulsions, which are frequently initiated by vomiting. The veins on the neck and head frequently become enlarged, and the neck retracted. In children of about seven years of age, there is more fever and much headache, which is frequently the forerunner of strabismus: then follows irregularity of the pulse.

\* A Guide to the Diseases of Children, 1883

† Loc. cit., page 458



**376. Epilepsy.** This is another of the sequences of catarrhal inflammation of the nose and ear. The chief symptom of this complaint is the loss of consciousness. This loss of consciousness is exhibited in every degree from the apparent quiet sleep to complete stupor, and from momentary period to one lasting for a day or more.

The face suddenly becomes pale, the head falls forward a little as if the patient were nodding in sleep, and the book or plaything in the hands drop on the lap or the floor. If the spasm occurs at night, the child may utter a few words at random in a meaningless way, or a sudden contraction of the muscles of the extremities may occasion a trembling motion of the whole body. In such cases the eyes open with a vacant stare. All of these symptoms become more severe and marked as the disease increases in severity.

**377. Headaches** are not uncommon in the latter part of this stage. Besides being caused by catarrhal inflammation, it frequently arises from a disturbance of vision. Many children are hypermetropic; consequently, if they are required to use their eyes for a long time at school, the continued strain upon the power of accommodation becomes excessive, and frontal headache may be the result, or the inflammation of the mucous membrane may, in this connection, induce convergent strabismus.

The pain in the head may be of a throbbing character, which can be alleviated only by sleep. Occasionally the headache is so severe that vomiting results.



## CHAPTER XV.

THE SYMPTOMATOLOGY OF THE THIRD GRADE; THE ONE IN WHICH THE PATIENT COMMENCES TO RECOGNIZE THE DISEASE; OCCURRING FROM THE TENTH TO THE TWENTIETH YEAR OF AGE.

**378. Subjective symptoms of a slight nature are now, for the first time, mentioned by the patient.** A majority of the younger half of this class, may still say that they do not know they have taken cold. If their subjective symptoms are marked, it will be seen on inspection that their objective symptoms are equally as well marked and, as already intimated, it is only the older half of this class that relate marked subjective symptoms. This is the stage for hyperplasia of the tonsils, and sometimes hyperplasia of the turbinated processes of the nasal passages. If the patient has escaped being affected with middle ear troubles, he may pass his life without any acute ear affection: that is, the treatment of his case should prevent extension of inflammation in that direction. Still, there are fewer deaf persons in this, than in the younger or older classes.

**379. Color of mucous membrane and appearance of blood-vessels.** If the examination be made by natural light, it will be observed that the color of the mucous membrane of the nasal and pharyngo-nasal cavities is a little darker red than the healthy mucous membrane covering the surface anterior to the velum, which is usually in a healthy condition. The whole surface of the passages is smooth.



In a circle of half an inch in diameter, from ~~two~~ to five blood-vessels will be plainly visible; they ~~are~~ usually regular in their course and caliber.

**380. Secretions.** The quantity of the muco-purulent secretion is usually sufficient to cover much of the mucous membrane of the fauces and pharyngo-nasal cavity, while in the nasal cavities the secretion is seen to coat upper portions completely, the under portion, *i. e.*, under the inferior turbinated processes, frequently being perfectly clean. The greatest amount of the secretion will be seen on the middle and inferior turbinated processes, and where the surfaces approach so nearly that they form creases. Accumulations will also be found on the surfaces of the pharyngo-nasal cavity most exposed to the direct current of air made by inspiration, as the posterior wall of this cavity.

In some cases the mucous membrane will be found to be slightly roughened by small hyperplastic growths, but these will not cause the least inconvenience.

**381. The color of the secretions** blown from the nose on a handkerchief will vary from a greenish brown this color being given to them by the blood to a light yellow. **The crusts** that are formed in the passages are of the same color. It will be observed that these crusts are never solid, but always **perforated by small holes** that reach to the mucous membrane, showing the escape of the gases that are formed by the decomposition of the matter; and it is principally through these small orifices that the watery portion of the secretion escapes. We can easily take advantage of these conditions in the treatment of the patients by covering the crusts completely with vaseline. This prevents the escape of the **gases and of the watery portion** of the secretion both of which will soon loosen the crust so that its removal can be effected without difficulty.

**382. Headaches** commence to be common in the latter part of this stage. **Tonsilitis** is quite a common complication. **Diseases of the skin** is also quite com-



**382. Pruritic rhinitis** is frequently experienced in this stage for the first time.

**383. Mental troubles** are seldom mentioned. The inflammation has not been of sufficient severity or duration to affect the brain.

**384. Hyperplasias.** This is the stage of the commencement of hyperplasia of the mucous glandular structures, such as the tonsils, turbinated processes, septum nasi, etc.

**385. The tonsils** exhibit a greater increase, from hyperplasia, than any of the organs similarly affected in this grade. Accompanying the enlargement by this cause, they may have increase of size by blood-distension. For this reason every case should receive from five to ten treatments before any operation for excision is performed. The preliminary treatment will reduce the swelling occasioned by the blood distension.

As in the earlier grades, enlargement of the tonsils induces change of voice. I have noticed for a number of years that nearly all patients who have had hyperplastically enlarged tonsils have been very liable to disease of the tonsils and to excessive variability of the strength of the voice.

**386. The turbinated processes.** These organs are nearly always the seat of excessive proliferation. These enlargements will give the voice a nasal tone and be the occasion of "mouth breathing." It is seen that the so-called disease, "mouth breathing," is a consequence and not a cause of catarrhal inflammation, but if long continued, it will greatly assist in the formation of follicular pharyngitis and enlargement of the tonsils.

**387. The uvula** is not frequently enlarged at this age. The usual local application will soon demonstrate whether or not the enlarged condition is a proliferation or not.

**388. The septum nasi** is sometimes enlarged. This enlargement is seldom a swelling merely, yet it would be



well to give the usual five or ten treatments before operating for the enlargement. As the space through the nasal passages will be decreased by the thickening of the membrane, the voice may be affected thereby.

**389. Laryngeal inflammation** of a chronic character is seldom observed in this grade. The voice is not unfrequently affected by acute attacks of inflammation in the pharyngo-nasal cavity but it is seldom greatly or permanently impaired, as the inflammation located above the larynx has not been of sufficient age to produce permanent changes in the mucous membrane or in its blood-vessels or nerves.

## CHAPTER XVI.

THE SYMPTOMATOLOGY OF THE FOURTH GRADE OF CHRONIC CATARRHAL INFLAMMATION; THE ONE IN WHICH THE PATIENT PROCLAIMS THE DISEASE; AND IN WHICH ATROPHIES COMMENCE AND SECONDARY DISEASES AFFECTING THE THROAT, EARS, STOMACH, LUNGS, BRAIN, BOWELS, KIDNEYS, ETC., MANIFEST THEMSELVES; OCCURRING FROM THE TWENTIETH TO THE FORTIETH YEAR OF AGE.

**390. Precautions.** About the commencement of this grade, patients begin to take ordinary precautions to prevent taking cold. Many times they do so more from the remembrance of repeated injunction given during previous years, than because they have learned from experience that it is conducive to health; and very few of them are at all certain that they take cold on exposure. They know that at times they experience chilly sensations up and down the back — a symptom seldom mentioned before



the twentieth year of age— but as soon as these sensations pass away they are forgotten.

391. After patients are twenty-five or thirty years of age, they commence to take much more care to prevent taking cold, as they have had several years more of experience as to its effect. They freely admit they take cold frequently, but the uniformity with which every cold had for many years apparently disappeared, entirely, without any attention or care on their part, and without any perceptible bad effects, lead them to think that the cold is only a temporary inconvenience.

To them we are indebted for the prevalence of the exceedingly erroneous and dangerous, but generally unshaken belief, that colds are followed by trifling consequence. This belief is held not only by the laity, but also by the great majority of the medical profession. The expressions made by this class of patients concerning their symptoms, plainly indicate their ignorance of the nature of colds and of the complaints originating from them.

392. After relating their symptoms, they say: "I thought it was only a cold, and would soon go away of itself, as others have done many times before;" or, "My physician said it was nothing but a cold in the head, which would pass away on taking some opening medicine;" or, "It cannot be a cold, but it acts like one; yet it is not like the colds I have had before, for heretofore colds always left me in a few days," etc., etc. This class of patients is very large, being nearly one-half of the total number treated.

393. The color of the mucous membrane is dark red, and frequently it has a granular appearance. If the posterior nares are inspected with sunlight, the color of the mucous membrane of the septum nasi will be found to be purplish, and frequently roughened by hyperplastic growths about the size of a large pin head, giving the surface the appearance of a purple raspberry, whose little tubules are somewhat flattened.



If the turbinated processes are enlarged, they usually have the same appearance.

**394. Peculiarities of blood-vessels.** In the early part of the grade, the blood-vessels are nearly regular in their course, while in those who are nearly forty years of age, the vessels are irregular, both in their course and in their caliber, and from twenty to fifty times their normal diameter. At the commencement of the treatment their color approaches that of a purple.

**395. Muco purulent secretion.** In patients, about twenty years of age, this secretion is usually seen upon the surface of the upper portion of the pharyngo-nasal and nasal cavities. Many times it is in large inspissated masses adhering very tenaciously to the locality of lodgement. Hemorrhage is frequently occasioned in their removal by the patient, either by blowing the nose or by the fingers.

**396.** In patients of about forty years of age, accumulations of inspissated secretion are rarely seen. The secretion at this age has comparatively few pus corpuscles in it; the quantity is seldom great, and it has nearly always a gelatinous appearance, being very viscid and adhering tenaciously to the surface. This quality of the secretion of the passages at this age is the same as that of the Eustachian tube at the same age.

**397. Pharynx and pharyngo nasal cavity.** The posterior wall of the pharyngo-nasal cavity and of the pharynx, is frequently affected with "**follicular pharyngitis.**" This condition is the result of small hyperplastic growths that have sprung from the sub-mucous tissue. I know that I have seen several thousand persons who have these growths in their fauces, but not one of them made the least complaint, arising from this condition.

**398. Gagging in the morning.** During this grade, the viscid, tenacious secretion adhering to the posterior wall of the pharyngo-nasal cavity and pharynx, causes excessively disagreeable sensitiveness of this surface. The presence of this secretion, and the hyper-sensitiveness is



the cause of that disagreeable morning symptom, which many patients call "gagging spells." These sensations are experienced in the morning, either before breakfast, or immediately after this meal. Many physicians, as well as patients, think that these symptoms are due to a disease of the stomach, because of the presence of mucus. I remember having a case—a young lady—who did not even blow her nose before her breakfast or immediately after it, without inducing attacks of sickness of the stomach.

**399. Local anæsthesia.** Accompanying the condition of the mucous membrane that favors the secretion of copious mucus, there is a certain degree of local anæsthesia. This condition is known by the patient's being unconscious of the presence of the mucus. The degree of tenacity with which the secretion adheres is a good indication of the degree of local anæsthesia, and of the severity of the complaint; it will also serve as a most important means of judging as to the lessening or increasing of the inflammation. If the patient is recovering, he will notice that the secretion is much more easily removed than formerly, but if during the course of the treatment he catches a severe cold and the secretion becomes more tenacious, it is an evidence that the inflammation is increasing.

We have another evidence of the progress of recovery in the fluidity of the secretions. If the secretions become more fluid they are seemingly increased in quantity, but this indicates a lessening of the inflammation; the reason for the apparent increase in quantity of the secretion, is because the treatment, in lessening the inflammation, has decreased the heat, and, as a consequence, the evaporation of the fluid portion of the secretion is checked.

**400. The tonsils** during this grade are not usually in an enlarged condition, on the contrary they are almost always found in the so-called atrophied condition.

**401. The turbinated processes** are usually enlarged at the commencement of this grade, but at the approach



of the fortieth year they are seen to be in an advanced condition.

**402.** This is the grade in which we find ulceration of the mucous membrane and necrosis of the bone.

**403.** During the early part of this grade gelatinous tumors; and toward the latter part of it bony tumors.

**404. Affections of the throat and vocal organs** are common throughout this stage; but all of the functions of the vocal cords are functional, being so far from being affected by pharyngo-nasal inflammation.

**405.** Nearly all of the ear troubles of this stage are due to the proliferation of the mucous membrane of the Eustachian tube, consequently the deafness, in its manifestations; tinnitus aurium is common; rhinorrhea are not common; nor are tumors of the ear. In this stage we frequently see patulency of the Eustachian tube.

**406. Stomach troubles** as a sequence of rhinitis are not uncommon, but the nauseating vomiting and cough is not an evidence of complication of the stomach.

**407.** We have more lung troubles in this stage than in all of the other stages, viz: emphysema, trachitis, bronchitis, catarrhal pneumonia, asthma, pruritic rhinitis, etc.

**408. Brain troubles** are among the most prominent symptoms of this stage. Loss of memory; irritability of temper; despondency; inability to think consecutively, etc., are among the most prominent and distressing symptoms.

**409.** Affliction of voluntary muscles through the nerves that are connected with the nerves of the naso-pharyngeal cavities and the ears, are especially common.

**410. A constipated condition of the bowels and a scanty renal secretion,** are very common complaints with the patients.



## CHAPTER XVII.

THE SYMPTOMATOLOGY OF THE FIFTH GRADE; THE ONE IN WHICH ATROPHIES ARE COMPLETED; MENTAL DISTURBANCES ARE PROMINENT; VERTIGOS ARE FREQUENT; PERMANENT DISEASES OF THE NERVES MANIFEST THEMSELVES, AND APOPLEXY TAKES PLACE; OCCURRING AFTER THE FORTIETH YEAR OF AGE.

411. Patients who have arrived at their fortieth year of age, have been strong enough to withstand the usual attacks that this complaint makes up to this age. The male portion of them have learned many lessons from the results of their excesses, and are now living much more consistently with the laws of health. They are frequently advising their younger friends to take good care of their broken constitution. The female portion of this class have also learned, from the results of numerous exposures to sudden changes of temperature, that it is an essential to health to clothe themselves in a manner consistent with the weakness of weak constitutions, and in accordance with the temperature of the weather and season of the year.

412. The atrophy of the tonsils, and the protracted mucous membrane of the upper air passages are completed in the early part of this stage. Not unfrequently the mucous membrane, that has for a long time been disorganized, or prevented from performing its functions, because of the presence of proliferations, begins to again secrete mucus, known by the surface being in a moist condition.

413. Mental disturbances are more prominent in this stage, than in the earlier stages. Patients who have



arrived at this age are liable to be what is com termed "crankie," "not quite right," "a little str etc. They are liable to be forgetful, gloomy, susp fearful of disaster of some kind, etc.

**414. Attacks of vertigo** are very commor sometimes alarming.

**415. Paralysis agitans** affecting the arms, t head, ears, etc., are common at the age of fifty yea over. Neuralgias of the face, head, arms etc., a with after the age of forty years of age.

**416. Apoplexy** is not an uncommon seq this stage.



## PART II.

### INSTRUMENTATION.

This part will be devoted to the description of **Instruments**, to the **Management of Patients** in the use of instruments and to the **Applications of Electricity**.

In SECTION I, I will describe:

**FIRST**, the appliances for making examinations and give suggestions as to the methods of using them.

**SECOND**, the methods to be employed and the instruments to be used for cleansing and making local applications.

**THIRD**, the instruments for making operations and the methods of using them.

In SECTION II, I will give suggestions as to the management of patients, as follows:

**FIRST**, as to the relative positions of the patient and the physician in office practice.

**SECOND**, as to the manipulation of instruments, and the position of patients in the sick room.

SECTION III, will be devoted to electricity, as follows:

**FIRST**, the kind of batteries to be used.

**SECOND**, the method and manner of making the applications of electricity.



## SECTION I.

### Instruments for Making Examinations, Applications and Operations on the Nose, Throat and Ears.

Only such instruments as I employ in my practice will be recommended. I will freely criticize methods, theories and instruments that I have found, from practice, to be hurtful, although popular at the present time.



## CHAPTER I.

### PRELIMINARY REMARKS.

**417. A place for each class of instruments, and for every instrument.** Every instrument should have but one place. Each class of instruments should have a separate drawer. Those used for the nasal passages alone; those used for the throat alone, those used for the ears alone should each have a drawer, while those used for nasal passages and throat, and those used for the nasal passages and ears should also each have a drawer, making five drawers.

**418. Convenience.** The instruments most frequently used should be placed in the most convenient part of the drawer to be taken when required.

**419. Non-interference.** No one but the operator should touch drawers in which the instruments are laid.

**420. Appearance.** Every instrument should be so made that it presents a good appearance. It is a true saying that "a mechanic is known by his tools," and it is equally true that an operator will be known by his instruments.

**421. Cleanliness.** Every instrument should be perfectly cleaned and dried before it is laid away in its place.

**422. Out of order.** He whose instruments are continually out of order is a sloven, and will prove to be a failure in practice.

**423. Sharpness.** Cutting instruments should not be laid in their places until an examination proves them to be in first-rate condition.

**424. Monthly Examinations.** Each instrument should be taken out of its place and examined, at least once a month. This will enable the physician to keep in mind the exact location of each instrument, as well as satisfy himself that they are all in good condition.

**425. Patient's fears.** It should not be forgotten that patients frequently have great dread that they may have to undergo a painful



operation upon entering the physician's office ; consequently, needless display of instruments should be avoided. As few as possible should be in sight.

The frequent repetition of such expressions as, "you'll not be hurt, you'll not be hurt," is not wise ; one re-assurance is sufficient, a repetition in the same language will weaken a patient's confidence. If the patient is afraid of the examination, don't take time to explain that it can't be painful, but give her the tongue depressor, tell her that she can't hurt herself with it, and make the examination at once ; if the spray producers are to be employed, make light of her fears in a pleasant, reassuring manner, but with few words ; if an operation is to be performed that must give pain, as the excision of the tonsils, tell her that it will not be nearly as painful as the extraction of a tooth, which is the case, and that the solution of cocaine will greatly lessen the pain, but do not make the needless and untruthful assertion that : "It will not hurt you at all !" repeating it four or five times.

After one tonsil is excised, tell the patient, in a complimentary tone, that she has undergone the operation with considerable courage and fortitude, at the same time, add ; "It did not hurt as much as you thought it would, did it ?" You can say this truthfully, for the excision of a tonsil is not nearly so painful an operation as cutting the same extent of healthy tissue, the tonsil being nearly all cicatricial structure, is in a more or less anæsthetic condition. I have very frequently thrust the needle of a hypodermic syringe into a tonsil fully half an inch, without causing nearly as much pain as a very small scratch of a pin.

**426. Three objects to be attained in the treatment of a case.** There are three objects that should be borne in mind while treating every patient :

**First.** Relief should be given as quickly as possible.

**Second.** As little pain as possible should be inflicted.

**Third.** The treatment should be made as pleasant as possible.

As the whole object of this work is directed to relieving the disability entailed by the diseases of the Nose, Throat and Ears as quickly as possible, preliminary remarks on the **first** object of the physician are not required, but I think a few remarks on the **second** and **third** objects will serve to show, 1st, that while they are acknowledged by every person as of great importance, there is no special pain taken to observe them by any one, and 2nd, that a little thought given to them will result in great benefit to both physician and patient.



427. Both of these paramount objects may, in a great measure, be attained, if the physician will simply allow the patient to assist him in his examinations and operations. By so doing, operations that always induce discomfort and frequently pain may be avoided, and should many times be made even pleasant, which will assure the successful issue of the case.

An intelligent **patient** is the most **reliable assistant**, without whose aid the physician must surely fail. This is strong language, but a large and lengthy experience has proven it true. I consider it so important that I have all the instruments that the patients can be made that they are convenient for them to hold.

428. In my opinion the employment of the tongue depressor is the key to the successful treatment of the nasal passages. If this instrument is so made that it cannot be held by the patient, it is valueless; if he cannot use it without inconvenience, it is of small value; the one that he can hold his tongue down with no inconvenience or discomfort to himself and fill every want of the physician, is invaluable.

429. **Ambidextrous.** Many physicians attempt to be ambidextrous. I think such attempts unwise. The manner of performing every operation should be learned perfectly and the hands should be accustomed to perform each operation in one certain way only, and that way should be followed in every operation; changing hands during the performance of operations should not be done.

430. **The qualities of instruments.** Some physicians purchase cheap instruments; those that work without requiring much skill on their part, and do not get out of order with any kind of use. They seem satisfied if the instruments make a show of doing something. They are pleased with a black rubber spray producer, or black rubber powder blower and such like, "because they can't be broken." The fact that they cannot fill all indications required, does not cut a small figure in their minds; cheapness is the quality that guides their purchases. If they can make money with such instruments their ideal of perfection is realized. Apparatuses that require mechanical skill to keep them in order, dexterity to handle them, and judgement when to use them, are many times not purchased. If reputation has been threatened or is injured.

431. **Good instruments** are worth the money they cost, and they return the money on being used on comparatively few cases; on the other hand, **make-shift instruments** are not only valueless, but will cause loss of reputation on being used on comparatively few cases.

A medical man's experience is worthless or valuable to him and others, according to the kind of instruments he uses; if his instruments



are worthless; so is his experience; if his instruments are the best, his medical experience, that is his education, is increased, is made more valuable every time he uses them.

**432.** One well stocked with good instruments, and well informed in their use, will have ample opportunity to employ them in the treatment of the diseases of the nose, throat and ears, as persons afflicted with some one of these ailments are to be found in every household. It is not likely that an intelligent person will have great confidence in a physician's ability to successfully treat these diseases,—acknowledged as they are, the world over, as well-nigh incurable—when upon his entering his office, almost no preparations for such treatment are to be seen.

**433. Awkwardness, ignorance, inelegance.** There is no justification in a medical man inflicting his patients with his awkwardness or ignorance; he who has not yet learned to handle his tools to the best advantage, should pay his patient victims for the pain and injury necessary to acquire this knowledge of his profession. It must not be forgotten that patients observe awkwardness, and a loss of reputation always follows such an exhibition.

**434. The inelegant posture** that some medical men assume when they examine their patient's nasal passages and throats, that is, standing over them in a stooping position, and the clumsiness they exhibit in handling their few imperfectly working instruments, in making local applications, constrains many intelligent persons to resort to the nostrums advertised in our daily prints.

I have in my possession statements written by patients, of the inelegant position in which quite a large number of reputable physicians assume in making examinations and local applications. For instance, imagine a well dressed lady sitting in a common chair, leaning back with her head thrown backward against the wall, and a tall man standing in a stooping position over her, so near that his head is within nine inches of her face, with a leg on each side of her, holding her tongue out with a dirty towel, that he had taken from his dirty washstand, directing her to say, e, a, e, a, while he thrusts a cold (!) pharyngeal mirror so roughly into her fauces that she gagged continually, instead of making the sounds desired.

It is evident that from such an examination, no one could say what was the matter with a patient's air passages, save by guess.

**435.** The same physician—I am relating what actually transpired in an Eastern city—walked to his mantle-piece, on which was placed, as an advertisement no doubt, a bottle containing a human finger, that he had amputated over ten years before—took from it an exceedingly rusty tongue "spatula," as he called it, wiped it, while dry, with the dirty towel, and was going to depress the lady's tongue with



it, but she, having made up her mind to leave him, gently objected whereupon he said it was not necessary, as he had seen plainly (?) what was her troubles, and concluded his medical service by writing a prescription for a Cutler Inhaler.

There are thousands of reputable medical men pursuing just such a course as the one above described.

**436.** If these old practitioners—and they are the only ones that should be specialists—would spend a little of their means and a few weeks to acquire a knowledge of these diseases and their treatment, their money would soon be returned to them, and it would save the loss of their well-earned reputation. Each of their patients, upon whom they failed, were confident that if their physician could not cure them, he, at least, would not make the attempt; but the fact that an attempt was made and a signal failure was the result, when a cure was promised in a few weeks, bedimmed a reputation that had been unsullied for many years; and, as a result, many of these physicians lose the practice in the families of which these patients are members, purely because they undertook the treatment of a disease that practice proved, with which they were totally unacquainted.

**437. First know a Method before an Improvement of it is Attempted.** There is not one of the many methods recommended in this work that was not suggested by practice and confirmed by experience; consequently, they are not such as one would naturally fall upon; on the contrary, they are such as no one would at first adopt, or, manifestly, they would have been adopted long ago. Each one is forced upon me by my patients' reports concerning the results of my applications. This indicates that they are not really my methods but such as have been adopted because my patients' reports said, in many words, they must be adopted if permanent relief was to be given. A man who is not wise in medical experience will be almost certain, at the beginning of his practice, to vary from many, if not from all the directions I have recommended, instead of first following the course as here detailed. No one can be a competent judge of a method until he knows and can practice it perfectly; after that he can understandingly make a change that might prove to be an improvement. But changes are not always improvements.



## CHAPTER II.

### APPLIANCES FOR MAKING EXAMINATIONS, WITH SUGGESTIONS AS TO THE METHODS OF USING THEM.

**438. Operating Table.** A properly constructed operating table is absolutely essential to a successful office practice.

It should contain a sufficient number of **drawers**, in which to place every instrument within easy reach, and to keep separate sets of spray producers for such patients as are regularly treated; a number of trays to hold bottles of medicines; also the necessary connections with a **galvanic battery**, with a **reservoir of compressed air**; and with the most convenient means **for illumination**.

Such a one I constructed in 1870, after considering every necessary want and convenience that would likely be required in the treatment of diseases of the Nose, Throat and Ears.

**439.** As will be seen from the illustration, figure 10, one of its corners is cut out, giving the top the shape of an inverted letter L, thus **7**. The physician sitting in this corner and placing his patient to his left, he has the table in front of him and to his right, and all instruments and remedies required in the treatment of the patient, within easy reach. It is not necessary to give a description of the table here, as this is fully done on another page.

### **440. OPERATOR'S AND PATIENT'S CHAIRS.**



The physician's chair should not have rollers; it should have arms, and be about two inches higher than a common chair. Rollers would make the chair liable to move, and should it do so when he was performing a delicate operation, it might thwart his efforts. The arms are useful in preventing him from making an inadvertent movement in his seat, while the greater height will be sure to place his eyes high enough to conveniently examine the air passages, and ears of the tallest patient.

441. The patient's chair should be one that can be raised and lowered to suit the height of the patient. I have sometimes had a head-rest screwed to the back of the chair, to rest the patient's head during an operation on the turbinated processes or the tonsils; but as a general thing I do not employ any mechanical support for the head.

442. **ILLUMINATORS.** Slightly concentrated light from a clear sky is the best illuminator for the nasal and pharyngo-nasal cavities, larynx and ears; as with it, or electric light, will the parts appear in their natural color. Light, of some kind, is necessary in making every examination, application and operation; and as illumination is frequently required at times when natural light cannot be had, **artificial light** must be the resort, even though it does, to a certain degree, hide the color of the mucous membrane.

443. It is to be hoped that in a few years, at most, we will be able to light up these cavities by electricity. As yet, however, the best illuminator, is possible only, in large hospitals, where a steam engine, whose aid is required to produce the light, is required for other purposes.

444. I think that great advancement in diagnosis and prognosis will likely be made, when we can employ electric light in our examinations: for with the best gas light, shades of the inflammation, which may be the only guide to the knowledge of the case, is either obliterated



or changed to such an extent, as to keep one in ignorance of the true condition of the disease.

**445. A good, clean coal oil lamp,** with a wick one inch wide, that has not been used longer than one month, will produce a flame nearly two inches square. This light being whiter, is to be preferred to gas light. It is concentrated and thrown into the anterior nares, mouth and ears by a concave mirror about three inches in diameter. This reflector may be held on the forehead by a metal band that is gently clasped over the examiner's head, such as is illustrated in figure 15, or it, with the light, may be so fitted to a bracket attached to the operating table, that it may be lowered or raised to suit the height of the patient's head.

**446.** If I treat a patient at his residence, I use the **metal head band**, seen in figure 15, for the purpose of holding the head-reflector, in which case I use either the natural or artificial light as may be most convenient.

**447. Platinum light.** During the latter part of the year 1884, I commenced to use a light that is far superior to gas or coal-oil light. The illumination comes from platinum wire gauze that is maintained hot enough by benzine to be nearly "white-hot." The method of heating is similar to that employed in a Paqueline cautery. The instrument I now use is one that I have had constructed, and is a modification of one made by Meyer & Metzger, of London, from whom I purchased the original instrument when in London, in 1884. The description of this illuminator is given with the illustration, figure 11.

**448.** In the office I employ artificial light almost exclusively. I do so because I find that it is better to use the kind of light that I can command at all times, as changing from natural to artificial light is apt to confuse one as to the degree of severity of the inflammation.

**448 (a).** Dr. Tobold has arranged a series of lenses (Fig. 12) to



such a manner as to concentrate the light on a concave mirror, which reflects the rays into the nasal, oral or aural cavities. This apparatus

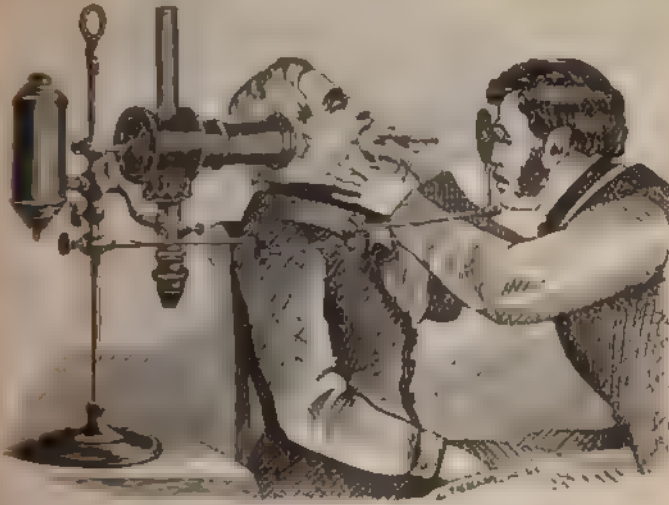
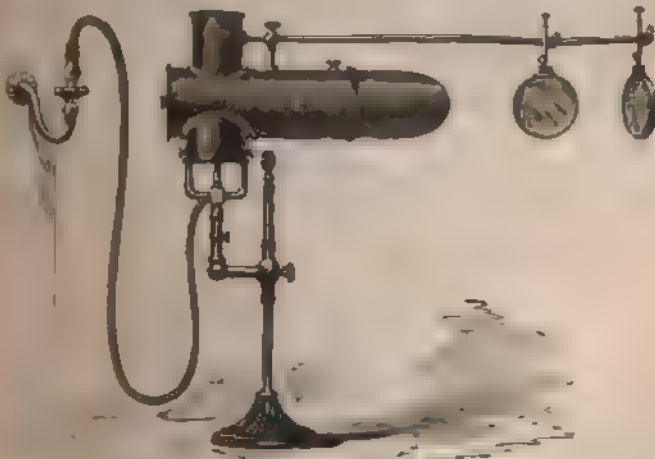


Figure 12. Tobold's Laryngoscope.

almost universally employed by those who treat the upper air passages. It may be fitted on a flat-flamed gas or coal-oil burner.



446 16). Figure 13.—Bresseler's Laryngoscope. This lamp is an improvement on Tobold's. Dr. A. DeVilbiss of Toledo, Ohio, has



devised a laryngoscope very much like this one. It can be attached to a student's lamp or a gas light.



**448 (c).** Figure 14.—This lamp compels the operator to wear his head reflector on his head all the time, which is both unsightly and exceedingly awkward as well as not being nearly so convenient as Tobold's arrangement.

**449.** Metal head-band for holding the head-reflector on the forehead. The metal head-band, mentioned in **446**, I had made by Geo. Tieman & Co., of New York, in 1865. I have used it every day since, and exhibited it to the members of the Sub-section on Laryngology of the International Medical Congress held in London, August, 1881. It is illustrated in figure 15.



Figure 15.—Metal Head-Band for holding Head-Reflector on the



**Fore-head.** There is a joint on top in the middle of the band, which allows the posterior half to be turned into the anterior half; the pads are made of black rubber and may be turned into line with the head-band. The metal band should not be longer than is required to easily reach from the forehead to the occiput.

When the head band is not in use, the joint in the middle of the upper portion of the bands, allows it to be turned together, so that one-half lies in the other. The pads, which are made of black rubber, are so attached that they can be turned into line with the metal band, thus economizing space.

The **advantages** of this kind of head-band are, that it passes over the top of the head, thus avoiding the painful effects of a continuously contracting elastic band, but presses itself into the forehead, while it is on the head. Besides this, the metallic head-band holds the mirror more firmly on the forehead than either the spectacle frame or elastic band.



450. Figure 16.—Rubber Head-band. No person can wear this head band for an hour without causing more or less headache.



450 (a). Figure 17.—Rubber Head-band. This band will be



required to be fastened on the head tighter than that represented in Figure 16.

**451. Nasal Speculum.** In making an examination of the anterior nares, some means of separating the alae as widely as possible is needed. For this purpose I have for years employed the Kramer's bivalve ear speculum. But the handles of this instrument are much too short for the patient to hold, which, I think, is all that makes it a defective nasal speculum.

**451 (a).** Kramer's Bivalve Ear Speculum (Fig. 18) is a well-

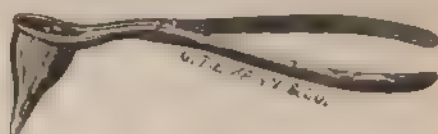


Figure 18.—Kramer's Bivalve Ear Speculum.

known and convenient instrument, and, in my opinion, to be preferred to Thudichum's, (Fig. 19) which causes more pain to the patient with-



Figure 19.—Thudichum's Nasal Speculum.

out opening the passage as wide.



Figure 20. Bivalve Nasal Speculum.

This instrument was made to take the place of Kramer's ear speculum, but it is not as convenient for operations as Kramer's, as the opening is not wide enough to allow the manipulation of instrument and entrance of light at the same time. The handles are not long enough.



Cotha's Nasal Speculum (Fig. 21) is effective, but is inconvenient to handle on account of its smallness.



Fig. 21.—Collin's Nasal Speculum.



Fig. 22.—Elberg's Nasal Speculum.

Elberg's Nasal Speculum (Fig. 22) also causes a slightly disagreeable sensation, especially to patients affected by pruritic rhinitis (hay-fever).

Frankel's Nasal Speculum (Fig. 23.) is quite popular but it gives



Fig. 23. Goodwillie's Nasal Speculum.



Fig. 24. Folsom's Nasal Speculum.

more pain than a good examination should produce.

Folsom's Nasal Speculum (Fig. 24) is similar to Frankel's; both of these instruments are called self-retaining; but to be self-retaining they must be placed so firmly in the nostril that they will occasion some distress.

Goodwillie's Nasal Speculum (Fig. 25) differs from the last two in that it is maintained by the spring of the instrument, so that the smaller the nostril the severer it will hurt the patient.



**451 (b).** Shurly's Nasal Speculum (Fig. 26) comes nearer being perfect than any mentioned in these notes. This instrument is especially useful when applying the galvano-cautery to the turbinated processes, as the ivory blade, which is placed next to the septum nasi,



Figure 26.—Shurly's Nasal Speculum.

prevents the heat of the platinum from irritating the mucous membrane of that side of the nasal passage.

**452.** I have had a nasal speculum made that has handles eight inches long. It is illustrated in figure 27.



Figure 27.—Nasal Speculum, eight inches long, with reversible blades. This length is given to it to enable the patient to hold it in his own nasal passage.

Such a length enables the patient to hold the instrument in position in the nasal passage, thus allowing the physician to use his hand for other purposes. If the patient does not hold the instrument in the best position for complete inspection, and they seldom do at first—the physician must properly adjust it. Thus held, it will be for more comfortable for the patient, than if the physician were to hold it, and the parts will be fully as well seen.

If this is the case, why cause great discomfort, if not excessive pain, by employing a self-retaining nasal speculum?

One of the blades of this speculum is flatter than the



other, the flatter one should be applied to the nasal septum, and when the other passage is to be inspected, the blades are turned over or reversed, as shown by the dotted lines in the illustration.

On each blade are two short pins or stops, to prevent the blades from taking a position that would approach a right angle to the handles, which they are liable to do if the patient depresses his head, or the instrument is used to elevate the ala of the nostril.

**453.** I employ this speculum in all operations in the anterior nasal passages and during all applications of the spray producer to the anterior nares.

**454. Anterior nasal mirrors.** The irregular surfaces of the nasal chambers cannot be perfectly examined by any kind of nasal speculum alone, for the reason that the peculiar formation of the turbinated processes hides out under surfaces. The instruments by which more thorough examination can be made, are glass mirrors of various sizes. One, the anterior nasal mirror, illustrated in figure 28, passed into the nasal cavity, anteriorly, this



Figure 28 — Anterior Nasal Mirrors.—The mirrors are represented in size. The handles are five inches long. The desired angle may be given to each mirror by bending the wire handle near the glass.

opening being dilated by the patient employing the nasal speculum; and the other, the pharyngeal mirror (figure 29) placed under and back of the velum palati.

These mirrors illuminate the surfaces and reflect their image back to the observer's eye.

I generally use three sizes of mirrors for the anterior nares, varying from two to five lines in width, and from five to eight lines in length. Each mirror is enclosed by



a wire, placed along the edge of the glass. The extremities of the wire, by being twisted together, serve as a handle as well as a means of framing the mirror. A coat of shellac protects the amalgam from abrasion. Any desired angle may be given to the reflector by simply bending the wire. The instruments are about six inches in length.

Patients, whose nasal cavities are capacious, can be more rapidly and thoroughly inspected by introducing the pharyngeal mirror, (figure 29), into the anterior nares.

**455. The Hinged pharyngeal mirror.** The inconvenience in making examinations of the posterior nares, the pharyngo-nasal cavity, and the larynx, with a stationary pharyngeal mirror, led me to devise the hinged pharyngeal mirror in 1867, illustrated in figure 29.



**Figure 29.—Hinged Pharyngeal Mirror.**—By pressure on the lever on the handle the mirror may be made to take any desired angle, thus reflecting the posterior, superior and anterior surfaces of the pharyngo-nasal cavity, and by turning the reflecting surface toward the larynx, this passage can also be seen; rotation on its axis reflects the lateral surfaces.

On the back of the frame of the mirror is a pivot on which the frame holder is slipped. Besides allowing any size of mirror to be slipped on the frame-holder, the instrument allows the mirror to be rotated, so that its longer diameter may be placed in any direction desired. The frame-holder is connected with a double stem by hinge joints. Any desired inclination by the reflector may be given by one of the stems being moved by a lever on the handle.

The instrument is complete with one handle and three or more reflectors of different sizes.

The advantages of the hinged mirror are:—

1st. After the reflection has been introduced within the fauces, the whole surface may be repeatedly viewed



without the elevation and depression of its outer extremity, which is necessary with the stationary mirror; thus avoiding one cause of agitation, or disagreeable impression on the patient's mind, which, in many cases, on first examination, is sufficient to excite contraction of the fauces, or cessation of breathing, which will cause pharyngeal contraction.

2nd. The survey may be repeatedly made, which is a desideratum, as the soft palate is found pendant, often-times, only for a very brief period, a position of the part necessary to a proper inspection of the parts above and behind the soft palate.

3d. An oval mirror may be rotated on the frame-order to suit a wide or narrow fauces.

4th. Different sized and shaped mirrors may be employed with one handle.

456. **Frankel**, of Berlin, has constructed a mirror on precisely the same principle as that employed in mine, with these two exceptions. 1st, there is no opportunity to change the mirror; if a larger or smaller mirror is required, an instrument on which there is a larger or smaller mirror, must be had. 2nd., the handle of the instrument is at an angle of 45 degrees to the shaft, and it is bent downward, so that rotation of the mirror requires the hand to make a part of a circle, which is difficult to do, and, at the same time, retain the reflector in the position in the fauces. According to my experience the less motion that is made by the hand while an inspection is going on, the more perfect will be the examination.

457. **Duplay's** rhinoscope (Fig. 30) differs from Frankel's in that



Figure 30. —Duplay's Rhinoscope.

the mirror is stationary, and it has a large ring, so hinged to the stem



of the reflector, that compressing the handles like scissors raises and lifts the soft palate upward and forward; but the uvula is left hanging in the operator's way.



Figure 31.—These illustrations represent what is frequently called laryngoscopical mirrors. The reflectors are stationery on the stem of the instrument. It is not possible with these glasses to make a complete examination of the pharyngo-nasal and posterior nasal cavities, as can be done by a hinged pharyngeal mirror.

**458. Tongue Depressor.** Every physician that I have seen in this country—excepting my students—or in Europe, who treats the diseases of the upper air passages as they occur in his general practice, or who devotes his entire time to these complaints, either draws his patient's tongue out with a napkin, or depresses it with a tongue "spatula," as it is usually called.

**459.** Except in rare instances, I am sure that neither method is the best that could be devised. Those who draw the tongue out, in the daily treatment of every patient who complains of throat trouble, believes that all the morbid sensations in the larynx are due alone to disease of the larynx. My experience—dating back to 1862—has proven to me that this is a very great and grave mistake. Very seldom, indeed, are laryngeal sensations due to disease of the larynx, and, with patients who have been but a few years complaining—with the exception of a very few cases who have had constitutional disease severe enough to result in ulceration of the larynx before they were seen by a physician—these throat symptoms are wholly and only due to disease situated fully three



to four and a half inches above the locality of the sensation.

**460.** This is a most important fact, as will be readily perceived by a moments reflection. If the larynx be not diseased, and applications are made to it that must produce a marked effect, and the location of the disease is not treated at all, the patient must be in a far worse condition, than before any application was made.

This subject will be fully discussed in another place; but it is so important that I thought it necessary to mention it here, in connection with the description of instruments for throat examinations.

**461.** The other method mentioned; that is, the physician depressing the patient's tongue by a spatula, is also quite defective, but the fault is almost alone owing to the fact, that the instrument is applied by the physician; the patient himself should apply it.

**462.** A tongue depression is required for the examination and treatment of all diseases of the posterior nares, pharyngo-nasal, pharyngeal and laryngeal cavities, as well as for many operations in these localities. It provides free access of light, and prevents interruption by the tongue during the use of other instruments.

In most instances, a pressure, however slight, on a patient's tongue by the examining physician, will produce swelling or contraction of the fauces and elevation of the soft palate, which will render an examination, or an application of sprays totally impracticable. But if the patient has the tongue depressor entirely under his control, there will be no dread in the mind of producing disagreeable sensations by the instruments. The muscles of the fauces and velum will be far more likely to remain quiet and passive, which is just the necessary condition that the patient's mind, and position of the throat must be in, if a successful examination or application is made.

**463.** For years (since 1869) I have used a tongue



depressor nine inches long, which is illustrated in figure 32



Figure 32.—A Tongue Depressor. — The whole length of the instrument should not be longer than nine inches. Three tongue pieces are required; one, two inches long, for children; one, two and a half inches long, for ladies; one, three inches long, for men.

This is a convenient length, for it places the patient's hand, that holds it, far enough below the chin to be out of the operator's way. Into the head of the shaft is fastened, by a milled head screw, either a longer or a shorter piece, adapted to the length of the patient's jaws. I use three sizes: two inches, two and one-half inches, and three inches long. The tongue pieces, should be so bent, that the base of the tongue will be sufficiently depressed, without causing the least retching sensation, and also so as to prevent the instrument from slipping out of the mouth, which it would be sure to do, if the angle is not greater than a right angle to the shaft.

464. With this depression, the soft palate, tonsils, uvula, and lateral and posterior walls of the pharynx, as high as the first cervical vertebra, and as low as the upper border of the third, may be exposed to view, and frequently the upper border of the epiglottis may be seen.

465. The patient is directed to place the depressor piece well back on his tongue, to open his mouth as widely as possible, and to breathe freely and naturally. This manner of using the depressor is not only more convenient for the physician, but much more pleasant for the patient. **The tongue depressor is the patient's instrument** during examinations and treatment, as well as



during many operations, such as opening abscesses on the tonsils, and excising them; excising a portion of the uvula; removing post-velum tumors; extraction of laryngeal growths, and the removal of foreign bodies from the larynx, etc.

**466.** Dobell's instrument (Fig. 33) for grasping the tongue is intended to take the place of the napkin, but it seems to me that it is not more convenient for the physician than a napkin would be, nor quite as pleasant for the patient.



Fig. 33.—Dobell's  
Tongue-Holding  
Forceps.



Fig. 34.—Folding Tongue Spatula Wire.



Fig. 35.—Green's Fenestrated  
Tongue Spatula.

**466. (a).** The folding tongue spatula (Fig. 34) is made for the physician only; no patient could depress his tongue successfully with such an instrument.

**466. (b).** The same may be said of the fenestrated tongue spatula (Fig. 35). The fenestra is an objection to this instrument, as it does would cause irritation of the base of the tongue, and be liable to excite retching. This result would be more certain to occur if the physician endeavored to draw the tongue forward, as is almost universally recommended by works on the throat.



466. (c). Truck's instrument (Fig. 36) has been before the profession for many years and is quite popular. My objections to this instrument are: that the tongue piece is too wide and too short; its edges

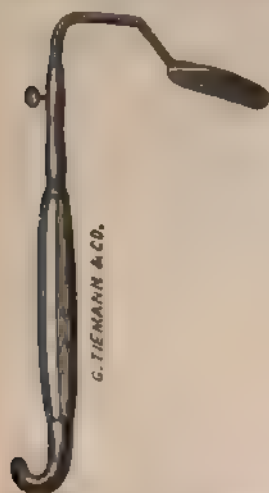


Fig. 36.—Truck's Tongue Depressor.

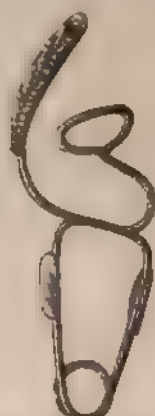


Fig. 37.—Staman's Self-Retaining Tongue Holder.



Fig. 38.—Folding Tongue Spatula.

must be pressed into the tongue before the base of the tongue is made to leave the soft palate, and the uvula hang free: this, with the very large serrations on its under surface is the cause of the patient's tendency to retch.

466. (d). Fig. 37.—This instrument is called a self-retaining tongue depressor. The intention of the inventor is to allow the use of his hand for another purpose than that of holding the patient's tongue.

466. (e). Fig. 38.—This is another folding tongue spatula, similar to Fig. 34, and as inconvenient.

466. (f). There are several other tongue spatulas made on the same principle as Truck's; but they are intended for the physician's use alone. The works describing their application state this: and the shortness of the handle prevents the patient from using it with freedom. The tongue piece of Truck's instrument is too short to cover the tongue, and the tongue portion of others far too long, some of them being five inches in length. Several of them have transverse serrations (Fig. 39) apparently for the purpose of retaining a surer hold on the tongue, and thus better enable the examiner to draw it forward. I think that serrations are not a recommendation to these instruments, as the irregular surface is apt to produce a disagreeable sensation on the tongue and thus tend to induce throat contraction.



Besides this, it is quite difficult to thoroughly cleanse a tongue depressor that has so rough a surface. This is an important matter as

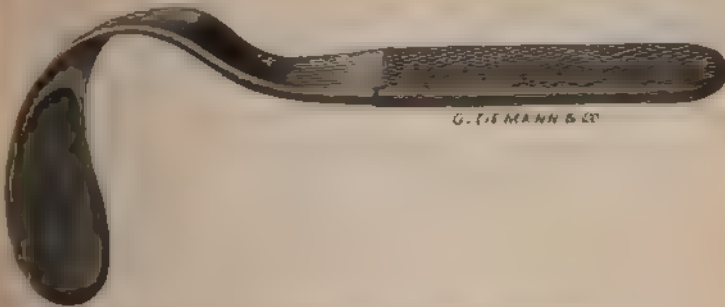


Fig. 39.—Hard Rubber Tongue Depressor.

Fig. 39.—The tongue portion of this instrument is nearly two inches wide, and the serrations are too deep to be cleansed by wiping it with a napkin.

to be perceived.

There is **no need for a roughened surface.** The tongue can be well depressed, and steadily held by an instrument that has a polished under surface, and this surface is easily and perfectly cleansed with very little trouble.

466. (9). Church's tongue holder (Fig. 40) is quite an attractive



Fig. 40.—Church's Tongue Holder.

instrument. When I first purchased this instrument, I felt sure that I had my stiff tongued patients completely under control; but my



confidence was because of ignorance in the practice of throat examinations. Stiff tongued patients are the very kind that will not tolerate such a depressor, and those who can tolerate it, can use almost any kind of a tongue depressor. The instrument is too difficult to be removed from the mouth. If a patient commences to retch, the physician will be compelled to unscrew the lever during the efforts of vomiting. Very few patients will tolerate a second application of it.

**467. Uvula Retractor.** It is sometimes necessary to raise the uvula and draw the soft palate slightly forward, in order to obtain a more extended view of the pharyngo-nasal cavity. The soft palate is often so exceedingly sensitive, that a hook-shaped retractor, even when handled with the utmost care, causes the fauces to contract and the palate to elevate, and instead of facilitating the examination, prevents any inspection of this cavity.

**468.** That these disagreeable sensations on the part of the patient, and hinderance to the examination may be avoided I employ a Uvula Retractor, illustrated in figure 41.



**Figure 41. Uvula Retractor.** The body of the instrument is a slender tube, about six inches long. Its larger extremity is trumpet shaped, and is covered with thin sheet rubber; its smaller extremity is so made that the uvula may be drawn into it.

of the following description: It consists of a tube, six inches long, and one-eighth of an inch in diameter. At one end, its caliber is increased to about one-quarter of an inch, and made cup-shaped for the reception of the uvula; the other extremity is trumpet-shaped, one inch in diameter and covered by a single thin sheet of India rubber. Care should be taken not to use a thick sheet, nor to stretch it very tight, as the usefulness of the instrument is lost if the suction is so strong that the patient can feel it on the uvula.

**469.** The smaller extremity is applied gently to the uvula, whilst the air is expelled from the tube by slight pressure on the rubber sheet, with the thumb. On remov-



ing the pressure, the uvula is drawn into the smaller end of the tube about one-quarter of an inch.

Only slight traction is necessary to lift the uvula, draw the soft palate forward, and thus increase the antero-posterior diameter of the cavity behind the soft-palate one-eighth to one-quarter of an inch; in some cases I have increased this space fully one-half inch. If carefully handled, the patient is not aware of the application, or at least does not complain of any unpleasant sensations produced.

**479.** The following description of the method of drawing the soft palate forward, by traction, is taken from Cohen on the Throat, etc., 1879, p. 72):

"In the earlier days of rhinoscopy, it was thought necessary to employ some means of drawing the palate upwards and forward; and various palate-hooks and elevators have been devised for the purpose, some of them combining either tongue depressor or mirror in the same complex instrument, and some of them tongue depressor, mirror and uvula elevator. Tuerck used a thread noose cast around the uvula by means of a canula. Mr. Hodgkinson, of Manchester, England, has devised a very ingenious appliance for noosing the uvula."

I was foolish enough to try this apparatus on myself, and found it to be so very painful that I was exceedingly glad to get it off. I am certain that no physician would suffer a second application of it on his own uvula.

On the same page Dr. Cohen says: "The space may also be more fully exposed by confining the palate in two soft silk tapes passed through the nostrils, out of the mouth, and tied over the upper lip in front. A sort of double T-bandage with four tails answers this purpose, and may sometimes be employed in this way for purposes of more thorough examination, or for facilitating operative procedures. These contrivances are not well borne."

If any one disputes the correctness of the last remark, let him try these "contrivances" on himself. India rubber bands are quite an improvement on "silk tapes." With these the patient can perform the act of deglutition which is the only act that will give him the least relief, and if he is prevented from swallowing, as he would be with the non elastic tapes, he will suffer intensely.

**471. Spreading Soft Palate Retractor.** In a few cases there is but a quarter of an inch between the posterior wall of the pharynx and the soft palate. While



this may be room enough to treat a patient with the spray producers, yet it is not sufficient to make a complete inspection of the pharyngo-nasal cavity, or to remove a growth from it. The uvula retractor will, in some instances, increase this space fully one quarter of an inch, which will be sufficient for complete inspection, but it has not retractive power enough to hold the soft palate forward during an operation. On such occasions, the whole of the velum must be drawn as far forward as possible, for this purpose a hook-shaped retractor is the only kind of an instrument that is reliable. As the patient is obliged to tolerate the application of such an instrument, any form that will dilate the passage, and not injure the soft palate, is all that is required.

472. In the early part of 1867, I removed a large growth from the superior wall of the pharyngo-nasal cavity, the greatest difficulty during the operation was that of retaining the soft palate sufficiently forward to both see and use the instruments at the same time. As a narrow hook did not enlarge the passage to the desired extent, a wider one was substituted. Frequently, as soon as this was placed behind the soft palate, involuntary deglutition and consequent contraction of the pharyngeal muscles would ensue. The severe pressure of the parts on the edges of the broad hook caused the patient excessive pain in both ears. These circumstances led me to devise the spreading soft palate retractor, illustrated in figure 42.



Figure 42.—Soft Palate Retractor. *A*, lever to separate the arms. *B*, the soft rubber band that closes the arms and holds the uvula out of the operator's way. *C*, the lever that raises the wedge. After the instrument is introduced behind the velum and the arms spread by the lever *A*, then the wedge retains them in this position.

473. This instrument slightly resembles a palate



hook split longitudinally. The hooks are so formed that the surface that comes in contact with the soft palate is convex, by bending the plates upward and forward. The arms are separated by a lever (.1) on the handle, and are maintained in this expanded condition by a retainer wedge. This wedge is connected with another lever (C) having a spring under it; the wedge insinuates itself between the arms when the lever (.1) is compressed, thus maintaining the arms as stated in an extended condition. The uvula is prevented from dropping into the operator's way by a small piece of rubber tubing (B) slipped on over the hooks. This rubber also closes the hooks when the wedge (C) is raised on the withdrawal of the instrument from the patient's mouth. The arms are sufficiently elastic & yield to the muscular contractions during deglutition, if it occurs, thus preventing injury to the soft palate such as is alluded to above when a broad hook was employed.

**474.** The application is easy. The operator passes the hooks into the mouth, while the patient depresses his tongue with the tongue depressor, using his left hand, at the same time requesting him to make a slight effort at phonating the syllable *ing*. Making this sound, causes the vellum to drop if it be elevated. The hooks are then raised sufficiently to engage the soft palate, and the limbs of the instrument are so separated by the pressure on the first named lever, (.1), that the soft palate is stretched laterally, after this, continuous traction on the handle increases the antero-posterior diameter of the passage. The instrument is now placed in the desired position: if an inspection is to be made. I retain the handle of the instrument while doing so: but if an operation is to be performed, I request the patient to hold the instrument with his right hand, the left hand still holding the tongue depressor. The patient, if he holds these two instruments himself, can do so much more comfortably to himself, and for a longer time, than if they are held by an assistant. Thus giving greater assurance of success,



in the employment of other instruments required to operate in the pharyngo-nasal cavity.

**475. Curved soft palate retractor.** Since 1878 I've used a soft palate retractor, illustrated in figure 43, that



**Figure 43.—Curved Soft Palate Retractor.** The curved extremity is passed along the floor of one nostril until it reaches the pharyngo-nasal cavity, pressing the two ring levers *a* and *b* together causes the curved extremity to draw the velum forward, the probe point *c* prevents the slipping of the velum.

can be passed through one of the nostrils into the pharyngo-nasal cavity. The instrument is so formed that its inner extremity can be caused to curve downward and by traction pull or draw the soft palate forward.

This retractor has the disadvantage of being narrow, but it will frequently be found quite useful in all operations where it is necessary to draw the soft palate forward for quite a length of time.

**476. Application.** The curved extremity is passed through one of the nostrils, until the small rounded point (*c*) is in the pharyngo-nasal cavity. After this the patient is entrusted with its use. He is directed to hold the instrument horizontal, and to cause the two rings, (*a* and *b*) to approach each other by compressing them with his thumb and finger. This causes the lower spring steel bar to come outward, and also to make the inner end of the instrument to assume a curved form, thus drawing the palate forward. The rounded extremity (*c*) of the inner portion is so formed, that it will keep the velum from slipping, and prevent pain on traction, as well as on its introduction into the nostril.

When the patient has become weary in holding the



soft palate forward,—and most of them do so in about 5 minutes,—he may relax his hold on the ring levers *a* and *b*) which will allow the curved portion to straighten out, without withdrawing the instrument from the nostril. With this instrument he can perform the act of deglutition as often as he desires.

**477. EAR SPECULA.** The best ear specula are Wild's, illustrated in figure 44. They are the only specula



Figure 44. Wild's Ear Specula. There are three sizes such as inserted to the auditory canal of the child, the middle aged and the adult.

that can be called binocular, they alone allowing both eyes to see all the membrana tympani at the same time. This is important, as monocular vision is deceptive. The specula should be made of silver or nickel plated metal, with their internal surfaces highly polished. The brighter, the more distinct will be the view.

**478.** Ear specula that have **curved sides** like Toynbee's (fig-



Figure 45.—Toynbee's Ear Specula.

ure 45) can be passed farther into the auditory canal, but this does not increase the distinctness of the view of the drum membrane, as it



is not brought nearer the eye. The curved sides of the instrument prevent binocular vision. This is explained in figure 46. In

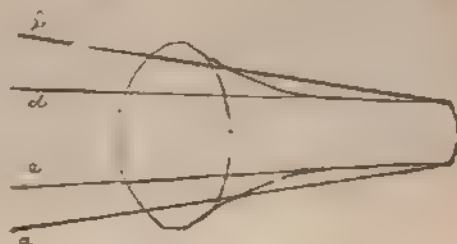


Figure 46.

478. (a) Figure 46.—Diagram showing the difference between the Wild and Toynbee Specula. At 7 inches from the speculum the dotted lines are 5 inches apart, which allows both eyes to be within visual range of drum head. While the dotted lines *c, d*, representing the Toynbee instrument are only 2½ inches apart, demonstrating that with this instrument only eye at a time can see the membrana tympani.

illustration the cone with straight lines represents Wild's speculum and the curved lines the shape of the Toynbee speculum. The dotted lines *a b* indicate the visual range of the Wild specula and those *c d* the visual range of Toynbee's.

479. When operations are to be performed, advantage is, that the **Wild speculum** as it has straight sides, will allow an instrument to pass directly to spot seen, and will obstruct less of the view than Toynbee instrument.



Figures 47 and 48.—Self-retaining Ear Specula.

There is no advantage in a bivalve speculum such as Kramer's (See Fig. 18) or in the self-retaining instrument



shown in figure 47 and 48, but are far more painful than the cone-shaped specula.

**480.** When inspection only is desired, I select the **smallest of the 3 specula**, for two reasons: one, because it will give less pain to the patient than a large one; another, because I can see more with it, as the outer extremity can be moved to a much greater extent than one that must fit more tightly into the canal. By moving the outer extremity of the instrument, the whole of the membrana tympani can be seen without giving any discomfort, which cannot be done if the largest size is used. A physician who occasions so much pain, that the patient can feel it for half an hour afterward, has not yet earned the necessary tact to make a proper examination.

**481.** A two inch lens will increase the light, magnify the parts, and will greatly assist the observer, in arriving at an accurate knowledge of the surface of the membrane.

When an operation is to be performed through the speculum, select the largest that can be passed into the canal, coating the auditory passage with a 5 per cent solution of the oleate of cocaine.

**482.** As the auditory canal is slightly curved upward and forward, it should be straightened, by gently pulling the helix upward and backward. This will allow the speculum to enter farther and easier into the auditory canal.



Figure 49. Hand Reflector for Examining the Ear.

**483. Hand Reflector.** I prefer to examine the ear by the



same reflector that I employ in the examination of the nose and throat. Many physicians place the patient before the window and use a reflector held in one hand while the other holds the ear speculum. Figure 49 represents this kind of a reflector.

**484. Acou-Otoscope.** In February, 1868, I was consulted in regard to an exceedingly annoying ear symptom. It was produced by the patient's own voice passing up his Eustachian tube. I had repeatedly observed the same symptom in other patients during previous years.

After frequently using an aural osculating tube, known then as Toynbee's Diagnostic Tube or Otoscope, I arrived at the conclusion, that the trouble was occasioned by an abnormally opened Eustachian canal. Still, I was fearful that I might be mistaken, as the symptoms tended to disprove the prevailing theories of Otologists, respecting the functions of the Eustachian tube, especially the one regarding the air supply to the middle ear. This determined me to make a more thorough investigation into the cause of these peculiar symptoms.

**485. In ordinary examinations** of the Eustachian tube and membrana tympani, the canal is auscultated through the auditory meatus at one time, and the drum head at another. Therefore while viewing the latter, we can only see the effects of the inflation of the middle ear on the membrane, but no note can be taken of the peculiar sounds made by the air in its passage through the Eustachian tube; nor while listening, by means of the aural auscultating tube to the sounds in this canal during inflation, can the effects of the air on the membrana tympani be observed. Consequently, during inspection of the ear, no auscultation can be practiced, nor during auscultation can any inspection be made.

**486. This impossibility of seeing and hearing at the same time** led to the construction of an instrument by which auscultation and inspection could be practiced together. As it combines two kinds of examinations, I



have called the instrument the Acou-Otoscope, of which figure 50 is an illustration.



Figure 50. Acou otoscope. An instrument to enable the examiner to *see* the membrana tympani, and *hear* the effect of the inflation of the Eustachian tube at the *same* time.

**487. Acou-otoscope.** It consists of an ear speculum with its larger end closed by a well-fitted piece of plain, clear glass; connecting with and opening into its cavity, is a metal tube about five inches long, and a quarter of an inch in diameter. The purpose of this tube is to conduct sounds from the patient's ear, to the ear of the examiner, and at the same time serve as a handle by which the patient can hold the instrument in proper position in his ear.

**488. The method of using the instrument is this:** The smaller end of the conical portion is placed in the ear, or if this is too large for the auditory canal, it is forced into a Wild's ear speculum. One end of a rubber tube about ten inches long is slipped on the long metal tube. The other end of the soft rubber tube is connected with a Cammon's stethoscope, the trumpet-shaped extremity being removed. After placing the Acou-otoscope in a Wild's ear speculum, if it is required, and inserting this into the ear of a patient, he is directed to hold the instrument in the position most favorable for the Aurist to view the membrana tympani, using the hand corresponding to the ear examined. He is cautioned against any movement of his fingers in holding the instrument, by which sounds would be produced by friction; as the slightest movement thus made will occasion sounds far louder than any that might come from his ear during examination. The physician now throws the light into the patient's ear, then places the stethoscope into his own ears, requests the patient to say "what" strongly, and,



while he inflates the middle ear, inspection is made through the glass of the Acou-otoscope, so that he may observe the effect of the air, on the membrana tympani. In this way he is enabled to *hear* the sounds produced by the air into its passage through the Eustachian tube and note its characteristics, and *see* the movements or other effects of the membrana tympani at the *same time*.

489. Every case of patulency of the Eustachian tube may be correctly diagnosed, and the degree of severity ascertained, leaving no room for any reasonable doubt. Indeed I may say, that in all pathological conditions of the Eustachian tube, especially if the membrana tympana is also implicated, the evidence afforded will be the most full and satisfactory, enabling a conclusion to be reached that justifies but little, if any, doubt as to the completeness of the diagnosis. The reason is obvious; namely, the faculties of **seeing and hearing are combined** in the investigation, thus insuring greater accuracy and certainty as to results, than was ever attained where only one faculty at a time was used. The recognition of the condition, pathological or physiological, by one of the senses will be confirmed by the other.

490. Sometimes it is desirous to know whether or not there is an **attachment of the membrana tympani** to the promontory. The best manner of ascertaining this fact is by the use of Seigle's otoscope illustrated in figure 51.



Figure 51. Seigle's Otoscope.

The speculum portion of the instrument is made to t



fit the auditory canal and the air in the middle ear and otoscope is exhausted by the lips of the operator. When gentle suction is made it will be observed, by inspection through the glass portion of the instrument, that the membrane moves slightly outward. If there is even a slight *anæsthesia* to the promontory the movement of the drum membrane will show the spot of attachment. Great care should be taken so as to not cause too great an exhaustion of the air as this will be certain to be followed by acute inflammation of the drum membrane.



Figure 52. Seigle's Otoscope with Ely's Attachment for a Syringe.

**491.** Dr. E. T. Eby of New York, applies a syringe to the Seigle apparatus, shown in figure 52, by which he causes much greater exhaustion, than is possible by the lips. Roosa, in his work on diseases of the ear, page 336, recommends this as a proper method of removing "serum, or tenacious mucus from the tympanum." I recollect, that in 1866, I applied a small syringe to my Seigle apparatus for removal of secretions from the middle ear, after a paracentesis of the drum membrane. A very small quantity of muco-purulent secretion, was removed to the outside of the drum head, but the patient was attacked by a very severe vertigo, and had all the visual appearance of undergoing a surgical shock, which it truly was. I am satisfied that the amount of secretion drawn out by the syringe, was not nearly equal to that which would have been forced out by a common inflation of the middle ear. A few years after this I made a few more attempts to remove secretion from the middle ear by this method, but in each case excessive vertigo supervened, and an acute myringitis was the result.

It is evident, that to withdraw muco purulent secretion from the middle ear, cannot be accomplished unless air enters through the Eustachian tube; and the quantity of air that will enter, during the very



brief period that an exhaustion process is going on, will not be sufficient to allow a great quantity of secretion to leave the middle ear, because the pain, occasioned by the suction, will compel the operator to desist.

**492. The watch as a means of ascertaining the hearing distance.** A watch that can be heard at a distance of seven or eight feet, by persons of ordinary good hearing, is to be preferred to one that can be heard only two or three feet. With a watch heard at a comparatively short distance, a patient might make even great improvement, and still show but slight increase in hearing, and if great care is not taken, the degree of improvement might be overlooked; whereas with a watch that can be heard at eight feet, even a slight improvement in hearing will be plainly indicated. A slight improvement is a matter of great importance to some kinds of cases.

**493. Methods of testing hearing by the watch.** The watch should be placed beyond the hearing distance of the patient and slowly brought toward his ear. His eyes should be covered by the interposition of a book or paper, so that he cannot see the watch. As the watch is slowly brought toward his ear, he should be asked once in a while, especially if he is a young patient, "Do you hear it?"

**494. In noting his hearing distance, record it in the form of a fraction, thus:  $\frac{12}{60}$ .\*** The denominator indicates the distance in inches that the watch can be heard by persons of ordinary good hearing; the numerator, the distance in inches at which the patient can hear the watch. If the watch has to be brought into **contact** with his ear before he hears it, *c* is placed over the denominator: if it requires **slight pressure**, *s p*; if **hard**

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\* Dr. J. S. Prout, of Brooklyn, N. Y., suggested this very convenient method of recording the hearing distance of the patient from the watch, in February, 1872.



pressure,  $h$   $p$ ; and if heard only on the mastoid cells,  $m$  is the numerator.

495. The watch is **not the best test** for practical hearing. The best test is the **voice** in ordinary conversation, but for the purpose of furnishing a guide as to the increase or decrease of the hearing of a patient while under treatment, it is more convenient than any apparatus now in use.

496. **The Tuning Fork.** This instrument is employed for two purposes: one, to make a differential diagnosis of the diseases of the internal and middle ears; the other to detect a perforation of the membrana tympani.

**The Tuning Fork in Differential Diagnosis.** To decide whether the disease is in the internal ear or middle ear, the fork  $C^2$ , is made to vibrate by striking it on the palm of the hand, and instantly placing it near the ear. It is held horizontally and the lower prong is made to point into the auditory meatus.

It should be borne in mind, that each prong of the fork makes its own sound, and that midway between the two prongs, the sound is not so great as directly in front of either.

497. This, I think might be called **ærial audition**. After the length of time the fork is heard is noted, it is again made to vibrate, using as nearly as can be, the same force in striking the palm of the hand as before. The handle of the fork is gently pressed over the center of the mastoid process of the same ear.

498. This I think might be called **bone audition**. The method I have just described, that is, striking the tuning fork on the palm of the hand, is quite defective, for the reason that the physician cannot be sure that he has given equal force to each blow on the hand.

499. **The duration** of ærial audition in a normal ear, is about 34 seconds. As bone audition in the same



ear is about 17 seconds, or half of aërial audition, any difference in regard to this relation of time will indicate disease. For instance: if aërial audition lasts but 2 seconds, and bone audition the normal 17 seconds, it indicates disease in the middle ear, or auditory canal, that is, the organs that conduct the sound to the auditory nerve; or if bone audition lasts 10 seconds, or shorter in proportion to the aërial audition, it indicates acoustic nerve trouble.

As above stated, it is the absence of the relationship of aërial audition, (34 seconds) and bone audition, (17 seconds) that indicates the location of disease, whether it be the internal or middle ear.

**500. Bone and aërial audition compared.** I have not seen a patient who had great reduction of bone audition, but had a reduction of aërial audition also, and I think that reduction of aërial audition, always precedes reduction of bone audition. I have seen bone audition improve, as aërial audition improved. Some authors and practitioners think that bone audition never improves. I have had quite a number of such cases improve, just as I have seen persons who had been operated upon for strabismus, improve in the visual acuteness, after the eye began to be used. I am sure that loss of aërial audition, will soon entail the loss of bone audition. The auditory nerve not being used, will begin to lose its faculty of hearing, but will regain it as soon as it can have an opportunity to exercise it again.

From what has been said, it is evident that the tuning fork is a valuable instrument by which to determine internal ear troubles.

This subject will receive further attention under the heading of diagnosis of internal ear complaints.

**501. The tuning Fork in detecting perforation of the membrana tympani.** In April, 1869, I suffered a rupture of tympanic membrane of my right ear, caused



by a loud explosion which occurred in making oxygen gas, using by mistake, sulphuret of antimony instead of peroxyde of manganese. By this accident I discovered a valuable means by which rupture of the membrana tympani might be correctly diagnosed.

In aural examinations I had frequently applied the tuning fork to my own head, when instructing my patients to observe the variations of its sounds while the auditory canal remained open or closed. In repeating the experiment on myself after the rupture of my tympanic membrane, I was surprised to find, that after closure of the auditory meatus of the right ear, by pressure of my finger on the tragus, I could not detect the usual variations in the sound of the fork, which I had so frequently heard previous to my injury. I then tried the effect of closing my left ear. From this ear, the usual variations were heard.

**502.** The closure of a healthy ear by pressure of the finger on the tragus, will increase the volume of the sound of the ear closed, provided the membrana tympani is not perforated. If it is perforated, there will be no increase in the volume, that is, there will be no variation. If the auditory canal is plugged by cerumen, the effect will be similar to a continual closure of the ear by the finger, consequently there will be no variation of sound. The same phenomenon may be observed, if the patient makes a humming sound.

Since this discovery, I have had many opportunities for testing this means of detecting perforation, and I have not had a single patient on whom it did not point out the true condition of the membrana tympani, as to whether it was perforated or imperforated.

In each of 7 cases of traumatic perforation, closure of the meatus of the injured ear had no effect on the sound of the fork; but as soon as the wound healed, the sound was varied in its tone by closing and opening the ear as heard in the uninjured ear.



**503. Methods and Instruments for Inflating the middle Ear.** Forcing air through the Eustachian Tube into the tympanum, is a means frequently resorted to, both for examinations of the ear, and for treatment of Catarrh of the tube, as well as for preventing or correcting ankylosis of ossicular auditus, or of synechia of the drum membrane of the promontory.

**504.** There are **several methods of inflation**, but no one of them is best suited for all varieties of causes. It is taken for granted at once, that the method which will accomplish the inflation and produce the least irritation, is the one to be preferred. To make a judicious selection of a method suited to a particular case, necessitates an analysis of the different methods. They are as follows:

*The Valsalvian method. Eustachian Catheter. Politzer's Method, and Gruber's modification of the Politzer Method.*

**505. The Valsalvian Method.** This method of inflation should not be employed as a rule. The Valsalvian method is performed by the patient closing his nostrils with his thumb and fingers, and forcing air from his lungs into the pharyngo-nasal cavity and through the Eustachian tubes into the middle ears. This, if frequently practiced, is liable to aggravate the congestion of the mucous membrane of the nose, throat and ears. I have treated several patients, who stated that their tinnitus aurium was caused and maintained by this method of inflation.

From the experience of these patients, I am sure, that self-inflation does not remove all the mucous from the Eustachian tube. Each one of them declared that the use of the air douche had a much more marked effect in improving their hearing, than simply "filling their ears with their breath." The air from self-inflation goes slowly into the middle ear, whereas, that from the air bag goes with a sudden gust.



**506. Eustachian Catheter.** The popularity of the Eustachian catheter, illustrated in figure 53, has varied



Figure 53. Eustachian Catheter.

with the good or negative results following its use. If an author of a book on the ear has been dexterous in its application, he will pronounce it an instrument that fulfills indications that cannot be met by any other means. However this may be, it is true that the great majority of physicians in this country, who treat ear diseases, reserve this instrument for those cases only, in which other pleasanter means have failed, and this is the correct course.

**507.** The cavities into which the extremity of the catheter is introduced, are the nasal, and pharyngo-nasal, and the mouths of the Eustachian tubes. They are traversed by a larger number of important nerves, than any other part of the organism of the same area, and the mucous membrane here takes on a tumified condition from apparently slight causes, because of the existence of long continued catarrhal inflammation, that always precedes and accompanies ear cases. The tumefaction of the mouths of the Eustachian tubes will have an injurious effect upon the hearing, as it decreases the caliber of the tube; thus preventing the continued ingress of air to the middle ear, which is essential to good hearing.

**508. The Method Employed by Foreigners in Using the Eustachian Catheter.** The usual way, the almost universal manner of using this instrument in clinics of Great Britain, and Europe, and even in many parts of this country, is to pass it into the nasal cavity, although the passage is coated by semi-solid secretion, and without care being taken to do so in an un-irritating manner; that is, judging from the wincing, if not the



struggling of the patient. I have seen patient after patient, blow blood from his nostrils after its use; and in about one third of the cases, I have seen the instrument coated with thick, greenish secretion upon its withdrawal.

It is not possible that a favorable result can follow the introduction of this instrument when it is made to pass so roughly over the sensitive mucous membrane that its curved extremity by its frequent propulsion and retraction (in the endeavor to place the end of the instrument within the mouth of the tube) abrades and in some instances, penetrates the membrane; or when it is pushed through a nasal cavity so narrow and irregular as to cause an abrasion of sufficient severity to produce hemorrhage; or when its introduction will occasion an irritation of the mucous membrane, sufficient to cause suffusion of the eyes and a copious flow of tears; or when its extremity is thrust into the mass of muco-purulent secretion lodged in the pharyngo-nasal cavity, in the neighborhood of the Eustachian tube. The friends of the catheter will say that the instrument should not be discarded because of the blundering application just described, and that it can be used without producing these bad effects.

**509. No Irritation.** To be beneficial, the introduction should not cause the least irritation, and the air blown through it should be warm. These are two conditions that should control its use. I restrict the use of this instrument to patients suffering from cleft palate, or from a perforation of the palate, or to those afflicted with paresis of the velum.

**510. Flexible Eustachian Catheter.** Since 1871, I have used a Eustachian catheter, the curved extremity of which is flexible, as represented in figure 54. The lia-

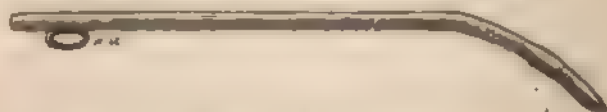


Figure 54. Flexible Eustachian Catheter.

bility to injure the mucous membrane of the nasal



cavities, and the mouth of the Eustachian tube by this instrument is much less than by any other. It consists of a rubber tube, the diameter of an ordinary catheter. At the outer extremity is fastened a ring, to indicate the position of curved extremity. The curved extremity is made of a piece of watch spring, fastened to the tube. At the farther end of the spring, there is soldered a small ring. Over the tube, curved watch spring, and small ring, is drawn a piece of smooth rubber tube.

This covers the whole instrument and makes it a non-conductor of heat, and prevents the yielding curved extremity from injuring the nasal passage in its introduction. The yielding or spring portion of the catheter is easily bent to any desired position. The rubber extremity prevents abrasion of the mouth of the Eustachian tube.

511. Although it is far less painful than either the hard rubber, or silver catheter, yet I **use it**, as already stated, **only when other still milder means fail**. It is my custom to direct the patient to hold the outer extremity of the catheter, after it is once introduced into the mouth of the tube. I do this, that undue pressure against the mouth of the Eustachian tube, may be avoided.

At first treatment, patients will not hold the instrument in the right position perhaps; but it is very much better to fail, in inflating the ear at the first trial, than to bruise the mouth of the Eustachian tube once. Yet in most instances, the tympanum may be inflated at the first sitting.

512. I always spray the nasal and pharyngo-nasal cavities, before inflating the middle ears, that the mucous membrane may be thoroughly cleansed, thus preventing the possibility of throwing secretions into the Eustachian tube, or tympanum, by the inflation.

### 513. POLITZER'S METHOD OF INFLATION.

Dr Adam Politzer deserves, and no doubt receives, the sincere thanks of the Medical Profession for giving us his



method of inflation of the middle ear. It is nearly impossible to over-estimate the benefits derived from this discovery. His manner of inflation is to direct the patient to swallow a little water, and during deglutition, to force air from a soft rubber bulb, as shown in figure 55, into



Figure 55. Politzer's Air Bag.

one of the patient's nostrils, the other being closed. As the avenue down the throat is closed by the soft palate, the air must enter the Eustachian tubes.

**514.** The nozzle of the inflator should be large enough to completely fill the nostril. I use an inflation nozzle, of the size illustrated in figures 56 or 57. The



Figures 56 and 57. Nasal Inflators for the Eustachian Tube. The upper instrument is made of metal, the lower of glass; both are reduced one third.

opening through it is so large, that the air will enter suddenly in a gust, and not in a continuous stream, as is done by *some* nozzles. If the compression of the rubber bulb be continued during the act of swallowing, air will be forced into the tympanic cavity, not because deglutition performs the office of opening the Eustachian tubes, but because this act causes the soft palate to cut off the escape of the compressed air, by the way of the fauces and closure of both nostrils prevents its escape through these passages, it therefore must go through the Eusta-



chian tubes, though sometimes it passes through the lacrymal canals also.

515. All the authors on ear diseases that I have examined, seem to be impressed with the necessity of accounting for the entrance of air into the middle ear, by other means than pressure, *i. e.*, by the levator and tensor palati muscles. They hold that the opening of the tubes by these muscles, at the instant that deglutition takes place, gives the air an opportunity to pass through into the tympanum. This I have shown to be incorrect, see topic 138. I am well aware that I am contradicting high authority when I assert, as I most respectfully do, that it has never been proved, that these muscles or any other muscles, open the passage to the middle ear. It is by no means a difficult task to demonstrate, that the Eustachian tubes are never open in the healthy subject, in the sense employed by Toynbee, Triltsch, Roosa, Hinton, Dalby, Knapp, Turnbull, Hermann, Foster, Landois, Stirling, and others.

516. That the Eustachian tubes are **always permeable** to air, in the healthy individual, is true; but that they are **so open** that air may freely **enter or leave the middle ear**, during deglutition, or any other act, has not, and **cannot be proved**. That deglutition closes the mouth of the Eustachian tube, may be demonstrated on every individual who has lost the septum nasi, and on many who have a large and straight nasal passage. I have seen the mouths of the tubes closed, hundreds of times, and could have seen the same so many times more, had I desired to look for it.

517. In 1870 I had a patient on whom I made my first inspection that demonstrated the fact that both mouths of this passage were closed at every act of swallowing. To make the observations I passed a pharyngeal mirror through the nasal passage, reaching the posterior wall of the pharyngo-nasal cavity. On this reflector I directed a strong light, which illuminated the parts under observation, so that they could be seen distinctly. I could see the action of every



movable part during their various motions. I thus made inspection during deglutition, both of solids and fluids; during vocalization, and forced, and natural respiration.

**518.** During deglutition, the soft palate was pushed back against the posterior wall of the pharyngo-nasal cavity by the alimentary bolus. The palate then ascended until its upper surface covered the mouths of the Eustachian tubes. Before the soft palate had ascended to the utmost height, the lateral walls of the pharyngo-nasal cavity were contracted vertically, so that the mouths of the tubes were completely closed. Then the soft palate made this closure still more complete by covering both mouths.

**519.** During the act of phonating sounds that pass through the mouth alone, the soft palate was raised and a portion of its lower border was pressed against the posterior wall of the pharynx. It was repeatedly observed that no sound or combination of sounds which any of the patients could make ever caused the soft palate to rise as high as it did during deglutition and no effort on the patient's part—but the momentary one of swallowing—ever closed and covered the mouth of each Eustachian tube. It is not difficult to prove that these are facts. Place an individual who has one large straight nasal passage, before the window, and allow the sunlight to fall into his open nostril; let him make any sound or combination of sounds, and it will readily be seen, that while so doing, he is unable to make the soft palate close the Eustachian tubes; but have him to swallow a little saliva then the velum will instantly rise and completely cover the openings.

This prepares us for the discussion of Gruber's modification of Politzer's method of inflating the middle ears.

#### **520. Gruber's Modification of Politzer's method.\***

As it is a fact that during deglutition the velum rises high enough to cover the mouths of the Eustachian tubes, and that no sound the patient can make will cause the velum to rise that high, we can readily see the advantage that Gruber's method has over Politzer's.

I have had a large number of patients claim that more air passes into the middle ear during inflation by Gruber's phonation method, than by Politzer's deglutition method. If this is so, it is another proof that the Eustachian tubes are not opened by deglutition, as repeatedly asserted by every author on otology.

\* Dr. Joseph Gruber published the description of this modification of Politzer's method, in the *Monats-Schrift für Ohrenheilkunde* for Oct. 1875.



**521. Gruber's method** consists in preventing the air from passing into the fauces, not by deglutition, as is done by Politzer, but by directing the patient to pronounce the word "hick," which completely closes the passage leading from the pharyngo-nasal cavity to the throat. **The word is pronounced forcibly**, just as the physician is in the act of compressing the rubber air bulb that sends the air into the nostril. The effort to pronounce the word plainly, forcibly and distinctly, causes the tongue to push the soft palate upward and backward against the posterior wall of the pharynx, and thus, as a deglutition to cut off the communication between the pharyngo-nasal cavity and the fauces. But, as before said, the pronunciation of the word "hick" does not cause the velum to rise so high that it will close the Eustachian tubes, whereas deglutition does both.

**522. Politzer's method** retains the condensed air above the Eustachian tubes, nor can the air enter the tubes until the soft palate has descended far enough to uncover them: then the air, as it becomes rarified by the falling velum, enters. Whereas when the word "hick" or "what," which I prefer, is pronounced, the mouths of both tubes not being closed or covered, are ready to allow the air to be forced into them at once, and it really enters them with more force than during deglutition. There is also more time for the air to pass into the Eustachian canals, for the reason that the soft palate can be maintained in the position that closes the passage to the throat, longer — fully 15 seconds, if required — than the time taken to swallow some water, as it is only in the last position of this act that inflation can take place.

**523.** During 1876 I made frequent trials upon the same patients, trying, repeatedly, the deglutition and the inflation methods. I inflated the middle ears of several patients who had perforation of the membrana tympani, by means of the Warm Air Spray Producer (see index), an apparatus that throws a steady stream of spray



and warm air. The nozzle of the apparatus was inserted into one nostril, the other being closed by the patient. In the ear having the perforated drum-head, I inserted a manometer; by which I could, very accurately, observe the passage of air coming from the middle ear. In every instance it was manifest, both to the patient and myself, that the liquid in the manometer was moved far less during deglutition of water, than it was during the phonation of the word "hick" or "what." With one patient, during deglutition, only two small bubbles of air were forced into the cup of the manometer; while during inflation from pronunciation of the word "hick,"—the patient retaining the tongue in the position that closed the pharyngo-nasal cavity for a few seconds—nearly all the liquid was blown out of the cup; so great was the rush of air through the Eustachian tube into the tympanum.

During these experiments, the spray from the apparatus was thrown with the same degree of force in each case.

**524.** Now, it is manifest that if the Eustachian tube was **opened by deglutition**, as contended by writers on Otology, the air should have passed through this canal to the middle ear, and out through the manometer, with far greater force and more abundantly, than it did while pronouncing the word "hick," but the opposite is the fact.

**525.** A very important advantage that inflation during phonation has over inflation during deglutition, is, that the pressure on the middle ear may be continued for several seconds. In some patients I have continued it 10, 15, and even as long as 20 seconds, but it is seldom that it is required to continue the pressure longer than 3 seconds at a time.

This continued pressure may be maintained for a still longer time by the use of the catheter, especially on adults, but we as frequently desire a continued pressure on the ear of a deaf child, on whom it is difficult to use



a catheter. Then too, a child would repeat the word "hick" or "what" a half dozen times, while it would not be willing to swallow as many mouth fulls of water.

**526. Unilateral Inflation.** There are times when the middle ear cannot be inflated, either by Politzer's or Gruber's method, without causing a painful sensation in the other. This unilateral inflation can be accomplished by the catheter, but since 1872 I have adopted a method that obviates the use of this instrument in all cases of this kind, in both old and young, and is as follows:

I direct the patient to **close the auditory meatus of the painful ear**,—the one that should not be inflated by pressure upon the tragus with the forefinger. Then inflation by the deglutition or phonation method can be accomplished without the least pain to the ear closed. This pressure prevents the outward movement of the drum-head, which is the cause of the pain, and condenses the air on the external side of the membrana tympani.

**527. RESUME.** (a) Inflation by force of air from the patient's own lungs, i. e. **Valsalva's method**, should not be recommended, as it tends to increase the congestion of the mucous membrane of the nasal

(b) The **Eustachian catheter** should be restricted to cases where inflation cannot be made by other means. The proportion of such cases, according to my experience, is about one in a one hundred. Recourse must be had to the catheter, its use should be discontinued as soon as inflation can be accomplished by milder means.

(c) The **Politzer method**, is a good one for inflating the middle ears of children who are afraid to repeat the word "hick" or "what" from fear of reproducing the sensation in their ears caused by inflation; and for some whose soft palate is so debilitated by catarrhal inflammation, that they cannot pronounce the word "hick" or "what," with sufficient force to prevent the condensed air from escaping into the throat.

(d) **Gruber's method**, that is inflation, while pronouncing the word "hick" or "what," is **preferable** for all those ear patients, who can pronounce the word plainly; and whose velum has sufficient strength to prevent the escape of air into the throat, and whose Eustachian tubes will allow air to pass through them.



In my judgment, this class of cases consists of fully nine-tenths of all those requiring to have the middle ear inflated.

NOTE. Other instruments and methods used for examination of Nose, Throat and Ear patients, required for comparatively few cases, will be described under the headings of the diseases themselves.

### CHAPTER III.

#### THE METHODS TO BE EMPLOYED AND THE INSTRUMENTS TO BE USED FOR CLEANSING AND MAKING LOCAL APPLICATIONS.

##### 528. CLEANSING THE NASAL PASSAGES.

Sometimes the nasal passages will require cleansing. In a very few instances the patient will need to attend to this matter himself. It may be difficult or impossible to give a correct diagnosis before inspissated secretions are removed, or the coated surface may require a preliminary washing to allow the medicament to reach the diseased mucous membrane. To accomplish this cleansing, the following methods are recommended :

(a) **By the patient.** The use of a cleansing liquid, drawn by the patient's breath, from his hand into his nasal and pharyngo-nasal cavities.

(b) **By the physician.** Removal of inspissated secretions from the nasal passages by the catheter nasal douche.

If the muco-purulent secretion is allowed to remain on the inflamed and overheated surface, it will become acid by fermentation, and greatly aggravate the disease.

529. (a) **By the Patient.** The use of a Cleansing liquid from the Hand, into the nasal and pharyngo-nasal cavities.



Those patients who have a profuse catarrhal discharge from their nostrils, may require instructions how to keep these passages in a clean condition.

During the intervals between treatments by the physician, the mucous membrane may become coated. Should this coating be allowed to remain, it will shortly acquire an acrid property as stated above, and by its irritating properties will tend to maintain the disease.

**530. No irritation.** While it is essential to a speedy recovery, that the nasal passages be maintained in a clean condition, it is equally as essential that no irritation, or the least uncomfortable feeling should ensue after the operation for cleansing is completed, and not only this, but a sensation of relief should be experienced immediately succeeding the cleansing operation.

**531. The simplest mode** of cleansing, and one that is effective, is the suction of water into the nostrils from the palm of the hand, or from a small sponge held in the hand. This is sufficient for cases in which the secretions have not become locked in the nasal cavities by reason of hardness or size.

**531. a) Instructions.** It seems as if it would require but little instruction to enable the patient to successfully perform this operation; aside from the directions given with regard to the ingredients, the strength and temperature of the solution to be used; but it will be seen, from the description of the method recommended, that the patient might not adopt it without special directions.

**532. During inspiration** through the nostrils, the course of the greatest volume of the stream of air, is not parallel with the bridge of the nose, nor does it pass along the floor of the nasal passages, but nearly midway between these two boundaries, generally at an angle of 45° with the plane of the forehead. If we keep in mind, that the tendency of the inhaled liquid is to take the same direction that the air does, and that the water, being heavier than the air, will deviate from this course by gravitation, we have only to place the head in certain conditions, to be able to bathe the entire surface of the nasal chambers, except the under portions of the turbinated processes.

**533. To wash the anterior third** of the nasal passages, the head of the patient should be inclined for-



ward to such an extent that the plane of his forehead shall be in a horizontal position, as is illustrated in figure 58.



Figure 58. First position of the head, in which the anterior third of each nasal passage is bathed by suction of water and air from the palm of the hand, or from a sponge held in the fingers.

In this position, the stream from the hand or from a small sponge,—about one and a half inches in diameter,—held in the fingers, will pass upward and forward at an angle of  $45^{\circ}$  with the horizon, and gravitation will cause a part of the water to fall on the anterior surface of the passages.

After the sponge has absorbed the solution, it is placed to the nostrils, and the liquid drawn from it, while compressing it, as from the hand. The quantity of the solution is easily regulated by the pressure of the fingers on the sponge. As the liquid is drawn from the sponge, it does not become soiled.

**534. Blowing the nose.** After the suction of a handful of the solution from the hand or from the sponge, the patient should blow the nose to dislodge all the fluid and loosened secretions. Continued and hard blowing of the nose should be avoided, as this is liable to force mucus up the Eustachian tubes, as well as to aggravate the congestion of the inflamed mucous membrane.

**535. To wash the middle third of the nasal**



chambers, the head should be inclined forward, until the forehead is at an angle of  $45^{\circ}$  with the horizon, as illustrated in figure 59. Then the greatest part of the solution will



Figure 59.—Second position of the head, in which the middle third of each nasal passage is bathed by suction of water and air from the palm of the hand or from a sponge held in the fingers.

enter the nasal cavities in a vertical direction, striking the upper surfaces, and gravitation will divert a part of the liquid forward and a part backward of the vertical line.

**536.** To wash the remaining third part of the nasal chambers, the patient's forehead should be held in a vertical position as illustrated in figure 60. Then the

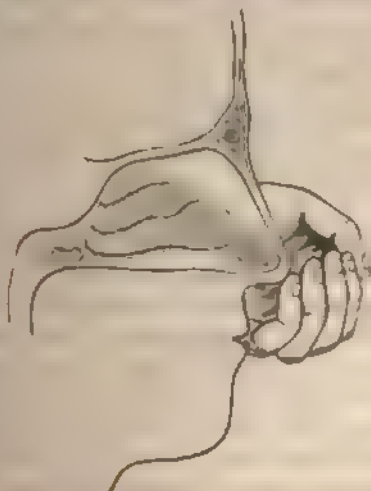


Figure 60.—Third position of the head, in which the posterior third of each nasal passage is bathed by suction of water and air from



the palm of the hand or from a sponge held in the fingers; in this position the upper surface of the soft palate and the posterior wall of the pharyngo-nasal cavity may also be bathed, if the suction is made with sufficient force.

stream of air and liquid will enter the cavities at an angle of  $45^{\circ}$  with the horizon, passing upward and backward. Gravitation, instead of causing it to fall forward as it did in the first position, will cause a part to pass along the floor of the cavity, thus bathing the floor as well as the posterior third of the passages. Again, all fluid and loosened secretions should be blown out.

**537. Washing the posterior wall.** With the head in this position it is possible for the patient to draw in the solution with sufficient force to strike the posterior wall of the pharyngo-nasal cavity, thus bathing the surface of this cavity, with that of the pharynx and upper surface of the soft palate. The patient can in this way remove tenacious mucus adhering to these surfaces, which he could not do by any other effort he could make, except the act of vomiting; because this mucus is situated too high to be removed by any movement of the tongue or soft palate, or by the force of the breath when drawn in through the nostrils and down the soft palate, or in hawking or rasping the throat.

In the first and second positions, the liquid will pass out of the nostrils, in the last position out through the mouth.

**538.** A majority of patients have "coughing spells" in the morning, as they term their efforts to clear the throat of adhering mucus. This annoying sensation is located in the throat, but the cause of the sensation is the inflammation in the pharyngo-nasal cavity. This is the reason that their efforts are fruitless. If the secretion was in the throat, they would be able to remove it *at once*, and with but little effort. And *because* the patient says that his trouble is in his throat, almost every physician in this country and in Europe looks into his throat to discover the cause, but sees nothing; at least not the degree of inflammation that would cause such distressing and persistent symptoms; and although not seeing enough to



account for the trouble, the throat is treated, but not, of course, relieved even of the throat symptoms, as the location of these symptoms is not at the place treated, but located two and a half to three or four inches higher up.

**539.** The patient feels as though his only means of relief is through frequent and severe coughing. This is often continued long enough to induce gagging, or a **qualmish condition of the stomach** and a copious flow of mucus. This fresh flow of mucus accomplishes the removal of the adhering mass, the mucous glands pouring out their quota of fluid secretion, and really pushing away the collection from the posterior wall of the pharyngo-nasal cavity, which is the cause of the "coughing spells."

**540. Gargling a failure.** Attempts to remove this tenacious secretion by gargling must always fail, for the reason that the liquid cannot be thrown sufficiently high to strike the surface to which the mucus adheres. This method washes only the tonsils, the anterior surface of the soft palate, the base of the tongue and a small portion of the fauces, a portion that never needs such treatment.

**541. The number of times these suction operations are to be repeated, is a matter of very great importance.** We must always keep in mind the fact, that the nasal passages were not made to receive any kind of foreign liquid, and that the membrane absorbs, to its injury, more or less of every liquid that comes into contact with it.

The medicated solution is a benefit, because it acts as a solvent and remover of vitiated and irritating secretions, which, if allowed to remain, are far more injurious to the mucous membrane, than the effect of the absorption of the liquid itself.

**542.** It follows, therefore, that just as soon as the secretions are removed, the use of the solution, if continued, will do harm. In reality, **washing these cavities is but a choice between two evils**, the use of the solution being the lesser while the secretions remain on the mucous surfaces; in other words: as soon as the passages are clear, the solution will have an injurious effect, as it does in a healthy nostril.



**543.** Use as little water as possible. From the moment the patient feels that after the surfaces have been washed, the water must be discontinued, even if it produces a pleasant sensation. The absorptive membrane becomes swollen, in which state it is susceptible to the injurious influences of the water.

**544. Non-irritation.** If at any time the liquid produces a painful sensation, its use should be discontinued. If the passages are not entirely cleansed. In such cases, a few partial washings aided by local applications made by the physician, will decrease the heat of the surfaces, which is the cause of the inspissation of the secretions, when the cleansing can be completed without producing the least disagreeable effect.

It may be found upon trial, that this method is not efficient in removing the hardened secretions, recourse must be had to the catheter nasal douche, described in chapter; and then, when the secretions can again be removed by the use of water from the hand, the use of the douche should be discontinued.

**545.** The solution to be employed, consists of one teaspoonful of common table salt in a pint of water, a little warmer than blood-heat.

**546.** Patients will soon learn from experience, whether or not this is the proper strength and temperature. Water, either without salt, or with too much in it, produces more or less pain, but with the right quantity—which varies slightly with different persons—it produces a pleasant, bland sensation. Cold water produces a disagreeable as well as an injurious effect.

The quantity of salt required in the cleansing liquid, depends on the quantity of salt in the blood, urine, tears; the normal quantity varies slightly, with different persons. The salt, besides increasing the viscosity of the secretions, which also contain salt, prevent the pro-



cess of endosmosis of the liquid used, and the right quantity prevents also the exosmosis of the blood serum contained in the mucous membrane. If either of these processes be induced, the mucous membrane will be more or less irritated, and pain will be the result.

**547. Warm Vasaline.** The patient should be directed to use warm vasaline from the hand *after the completion of every washing*, placing the head in the same positions as when the aqueous solution is used.

**548.** To warm the vasaline, the patient should *heat a tablespoon* over a lamp, and then place the vasaline in it. After the vasaline is melted, he should place the spoon in his hand to ascertain its temperature; and as soon as it has cooled off sufficiently not to burn his nostrils, but still a little warmer than blood-heat, he should pour the vasaline into his hand, and at once draw it into the nostrils as he did the warm salt water, using his handkerchief two or three minutes afterward.

**549.** Oftentimes I advise the use of vasaline without the previous use of salt water. The effect is always beneficial, and especially so if used after taking a cold in the head.

**550. (b) By the Physician. Removal of inspissated secretion from the nasal passages.** When the moco-purulent secretion has become so hardened and adheres so tenaciously to the mucous membrane of the superior portion of the nasal cavities, that the removal cannot be accomplished by the force of water drawn into the nostrils by the breath, from the hand or from a syringe, such other means must be resorted to as possesses sufficient force.

My experience has taught me that there are **three things to be observed** in order that the means employed may accomplish the desired results.

**551. Non-Irritation.** The first is that the means employed shall be effective without, at the same time, causing the least irritation.

A. physicians who have had even a few years experience in treat-



ing this disease, will understand how necessary it is to carefully observe this precaution. So important a matter is the avoidance of irritation, that it should not only measure the value of the means for cleansing, but for making local applications also, as well as for deciding the value of the medicaments themselves. Experience has abundantly proved that an **increase of irritation, and a decrease of inflammation**, do not go together in the same inflamed mucous membrane.

**552.** The second is that direct application be made upon every portion of the diseased surface within the nasal and pharyngo-nasal cavities.

Although the correctness and importance of this are obvious, and are generally conceded, yet, strange as it may appear, this very important indication is not fulfilled by any of the apparatuses now recommended in Europe, or the eastern portion of this country.

**553.** The third requisite is that the means employed should have force enough to remove the tenacious secretion from the diseased surface.

Cases are numerous, where the complete removal of the secretion is all that is required in the way of local indication, the presence alone, of the secretion—which is always irritating—causing the disagreeable symptoms, which, if removed by mild means, are almost immediately allayed.

**554.** It is impossible to avoid discussing the relative value of the means usually recommended by various authors to meet the three requisites or indications given above, and I propose to discuss them very fully, but will comment on such only as have been mentioned by high authority during the last ten years.

**554 (1). The Posterior Nares Syringe.** This instrument (Fig. 61) has been recommended, and is employed for this purpose, but



Fig. 61.—Posterior nares syringe. The point of the instrument is passed up behind the soft palate, and then the fluid contained in the syringe is thrown into the pharyngo-nasal cavity. If the patient leans his head forward and



still his breath, as most of them do, the water will not choke them; as most of them pass out of the nostrils in front.

even when the physician has learned to handle it carefully, it frequently causes so much irritation, by the passage of the roughened part behind the soft palate, that the patient refuses to have it applied at future visits. Then too, the throats of those patients who have catarrh of the nasal cavities, are exceedingly sensitive to all such appliances, and because of the elevation and spasmodic pressure of the soft palate against the posterior wall of the pharynx, occasioned by this sensitive-ness, the curved, roughened extremity of the instrument is pressed— in the endeavor to pass it up behind the velum—against this wall with so much force, as to induce a pharyngitis, even had none existed before its application; thus not only originating, but increasing the inflammation existing in this region.

**554 (b). Irritating effect of post nares syringe.** Not infrequently in cases of acute pharyngitis, expectorations streaked with small quantities of blood, continue to be seen for fifteen or twenty days after using this instrument. In 1872 I had a patient, a physician, who had been treated in this manner. He stated he had not at any time experienced pain in his throat until after the use of the posterior nares syringe. On each of the last five days that this instrument was employed, he expectorated blood for several hours. This alarmed him, and as his physician had assured him that neither the syringe or the medicines employed were the occasion of this bloody expectoration, he had his lungs examined for the purpose of ascertaining their condition, fearing the blood came from them. As these organs were pronounced sound, he concluded to discontinue his visits to his throat doctor. In a few days all his alarming symptoms disappeared; but the nasal secretion soon increased after the discontinuing of the syringe. He then commenced to use the syringe himself and continued it at times, making on the average, about three applications a week. After three months use of the instrument, his friends observed that he was becoming deaf. This additional affliction, with the certainty that his nasal catarrh was increasing in severity, and was producing marked mental symptoms, induced him to consult me.

I am of the opinion that the use of the posterior nares syringe has much to do with the sudden increase of his catarrhal disease. I will give quite a number of cases that were similarly injured by this treatment.

**554 (c).** It is preposterous to expect that a naso-pharyngitis will be even improved by such treatment. It will require at least



two weeks careful treatment to overcome the injury done by one such application.



Figure 62. Warner's Catarrhal Douche.

Warner's Syringe is intended to take the place of the one above. The curved extremity and the streams from it are the same as the posterior nares syringe. The instrument is evidently made to be used by the patient himself. I have had a large number of patients who had quite an extended experience with this kind of an apparatus. At first they were much pleased with the effects of the applications but it soon made their throats so sore that they discontinued its use.

**555. Weber's nasal douche.** The apparatus to which both the professional and non-professional most frequently have recourse is the Weber Nasal Douche. I will discuss its merits and demerits at some length, noting at the same time whether it does, or can meet the three indications before mentioned. **551.**

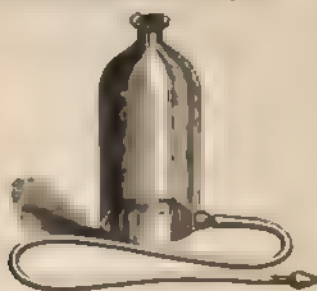


Figure 63. Weber's Nasal Douche ("by the method of Professor Thudichum").

Dr. Thudichum, in a paper published in the London Lancet, 1864, says of this douche: "All difficulties are removed at one stroke by the discovery of Prof. Weber, of Halle (Germany). When one side of the nasal cavity is entirely filled through one nostril with fluid from hydrostatic pressure, while the patient is breathing through the mouth, the soft palate completely closes the choanae, and does not permit fluid to pass into the pharynx while the fluid passes into the other cavity, mostly around and over the posterior edges of the septum narium, in some persons also the frontal sinuses, and escapes from the other open nostril, after having touched every part of the first half of the



cently of the nose,\* and a great part certainly of the lower and median cavities of the second half. By means of the application of this principle to the treatment of the diseases of the nose, it is possible easily and frequently to wash the nasal cavity, to disinfect and deodorize it, and to apply to its surface a great number of beneficial medicinal substances, so as to prevent acute affections from extending, and to incline them towards a speedy recovery; to stop hemorrhages, allay irritations and subdue in a remarkable manner chronic affections of the Schneiderian membrane, so as to re-establish a perfectly healthy surface and normal condition of the organ of smell."\*

Such declarations can not come from one who has had much experience with the instrument. I know the instrument cannot do what is claimed for it. The high authority of the periodical in which the article appeared, the apparent philosophical style in which it was written, seemingly the assertions of one who had SEEN THE METHOD do what was claimed for it, gave a guarantee of a cure, and raised high the hope of both practitioner and patient.

It seems remarkable that so large a number of contributors to our Medical Journals and almost every author of a work, devoted either wholly or partially to diseases of the nasal cavities, should have accepted, as undoubted, the assertions contained in the paragraphs quoted.

556. In the paragraph quoted above, there are nine assertions that practice has positively contradicted:

1st. "All difficulties are" NOT "removed by Prof. Weber's discovery."

2nd. "Every part of the first half of the cavity of the nose is" NOT "touched."

3d. "By means of the application of this principle to the treatment of diseases of the nose it is" NOT "possible easily and frequently to wash the nasal cavity."

4th. NOT "to disinfect and deodorize it."

5th. NOT "to apply to its surface a greater number of beneficial medicinal substances, so as to prevent acute affections from extending and to incline them towards a speedy recovery."

6th. NOT "to stop hemorrhages."

7th. NOT "to allay irritation."

8th. NOT "subdue in a remarkable manner chronic affections of the Schneiderian membrane."

9th. NOT "to re-establish a perfectly healthy surface and normal conditions of the organs of smell."

Now let us carefully examine this popular means for cleansing

\*Alleged by the Author.



and applying remedies to see if it possesses all the excellencies that are claimed for it, by its numerous friends.

**556 (a).** There is no doubt of its possessing, to some extent, the first requisite to good treatment; namely, not producing irritation at first, but I will show hereafter that harm does frequently follow even a few applications, and that injury universally follows, if it is used daily for several weeks.

**556 (b).** That Dr. Thudicum made a grave mistake when he asserted that it touches every part of the nasal cavity, may be conclusively shown by the following experiment:

First cover the mucous membrane of both nasal chambers, of the person upon whom the experiment is to be tried, with finely powdered starch, by insufflation, both in front and from behind the velum palati; next incline the head forward, as recommended by Thudicum, and pass a weak solution of iodine and iodide of potassium through the nasal passages by means of this douche. The iodine solution will either discolor or wash away all the starch within its reach; the discoloration will be the characteristic blue of the iodide of starch.

The effect of this washing may be seen by reflecting natural light upon a pharyngeal mirror, placed under and behind the pendant soft palate, and by inspection through the anterior nares. The washed or discolored portion of the mucous membrane, will show that the greatest height reached by the iodide solution, in the anterior superior portion of the cavity, was only a little above the anterior extremity of the middle turbinated process, indicated by the horizontal line, *b, c, is*

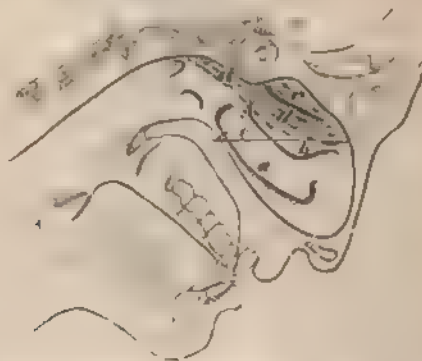


FIGURE 61. Antero-posterior section of the head. *a*, inferior turbinated process; *b*, middle turbinated process; *c*, superior turbinated process; *d*, the location of the catarrhal secretion; *e*, dotted line showing the position of the posterior edge of the nasal septum. The letter *f* is on the line showing the height of the water from the Weber douche.

figure 64, and that only portion of the cavity lying below a line drawn



from this point to the lower surface of the posterior-nasal opening is washed, all the surface above the posterior to that line is not washed, the white starch remaining plainly in sight.

**556 (c).** In other words, the solution, flowing into the nasal cavity will rise until it reaches a level that is on a horizontal line (*b, c,*) with the interior surface of the posterior-nasal opening of the side into which the liquid is introduced; then, instead of rising higher upon the inflow of more liquid, it will flow around the posterior border of the septum narium. (indicated by the curved dotted line, in figure 64) over the portion of the soft palate that joins the hard palate, into the other nasal opening, and thence out through that passage.

**557. Defective application.** Thus it is seen that instead of "washing every part" of the cavity, as asserted by Dr. Thudichum, only a little more than the lower half is touched, and it is that half, which is very rarely incrustated or requiring treatment; the upper half the region whence all secretions flow that find lodgment in the inferior portion of the passage, remains untouched, and hence uncleaned. In the other nasal passage the floor only is washed, and not the middle meatus, as Thudichum declares.

**558.** It is a mistake to suppose that the elevation of the soft palate against the posterior wall will cause the fluid to rise higher in the nasal cavity than has been stated, because the liquid has still the same avenue for escape, namely: around the septum nasi and through the other posterior nasal opening.

Nor can the nasal chamber be filled by the closure of the other nostril. This act will cause the inflowing liquid to rise a little higher, but before the passage is nearly filled, a part of the liquid will flow upon the upper surface of the soft palate, its presence upon this sensitive organ will occasion involuntary deglutition, instantly followed by partial strangulation; because of the liquid falling into the open larynx and causing a choking sensation of a severe character.

**558 a).** It will appear manifest to all who have studied the anatomical structure of this part of the head, that it is not the elevation of the soft palate, nor the closure of the passage into the fauces, nor the closure of both nostrils, but the position of the head that governs the amount of surface touched by the water. The nasal cavity, while the head is in an erect position, will not retain a liquid any better than a cup while lying on its side. The more the head is inclined forward, or until the posterior border of the nasal septum (see curved dotted line, Fig. 64) is placed in a horizontal position, the greater the quantity of liquid retained in the nasal chamber. But should the water douche be used while the patient's head is in this position, a far more serious inflammation would result in other adjacent cavities



than in the one being treated; for a part of the irrigating fluid, in which there is dissolved decomposed secretion, will pass into the antrum of Highmore and frontal sinus, through openings under the middle turbinated processes.

**558 (b).** It is evident that the liquid from this douche does not touch the superior portion of the nasal cavity, nor even the upper half of the middle turbinated process, the localities in which the greatest amount of secretion is formed; consequently it does not fulfill the third requisite.

**559.** The secretion formed above the water line is remarkable for the tenacity with which it adheres to the surface where it lodges. If a stream should be thrown with sufficient force to reach these localities, instant and involuntary deglutition would take place. I have on several occasions used two and even three gallons in endeavoring to cleanse these surfaces, and even that quantity of fluid was not sufficient to soften and remove that portion of the collection with which was reached by the douche. During passage of the solution through the cavities, the healthy mucous membrane will absorb enough water to cause it to become swollen to such an extent that the patient will be compelled to breathe through the mouth. Several such applications, will produce so great a degree of tenderness or susceptibility, that the least exposure to cold atmosphere will likely induce an attack of acute catarrh in portions of the membrane previously unaffected. It is in the way that every catarrhal victim who uses it, unconsciously, extends the inflammation to unaffected parts. In some instances, the ill effects manifest themselves suddenly and severely.

**560.** Yet it must be admitted that the number thus affected, is remarkably small in proportion to the large number who have used, and are daily using this most unscientific method. One of my patients began using the douche in March, 1871, employing it from one to three and sometimes as many as four and five times daily, rarely passing an entire day without its use, making in all a total of about 3000 applications. Twice during this period he experienced painful sensations in his ears, and on four or five occasions, a pain in the left cheek, showing that the left antrum of Highmore was injuriously affected by it. I have seldom—until late years—treated a patient who has not used this method a great many times; yet I have heard few complaints against it because of any recognized injury received. So small indeed, is the number who experience marked injury to the ears or sinuses, that, in my opinion, were the method as effective as claimed by Dr. Thudichum, its use should not be discontinued because of the occasional bad results therefrom.



**561.** This douche is not condemned because, in comparatively few cases out of thousands who employ it daily, without instruction or warning, it causes an acute inflammation in healthy regions of the lead, BUT BECAUSE OF THE INJURY DONE TO THE HEALTHY SURFACE, WITHOUT AT THE SAME TIME BENEFITING THE UNHEALTHY OR CATARRHAL SURFACE, for this reason and because of its ineffectiveness, the profession should strongly condemn it on all occasions.

**562. Water more or less injurious.** The application of water or any fluid to the nasal cavities, is always productive of more or less injury to mucous membrane when it does not require cleansing, but if irritating secretion is removed, which could not have been accomplished without its aid, the injury done to the clean membrane is compensated by the benefit resulting from cleansing an inflamed membrane.

The danger to be most dreaded, is the susceptibility of the un-inflamed membrane, after frequent bathings, to acute catarrhal inflammation. I am certain, that fully 95 per cent of the cases coming under my observation, have not only maintained their catarrh, but have allowed their inflammation to extend to other parts of their nasal passage, by the excessive use of water.

**562 (a).** It is due to the pleasant effects of warm liquid on the inflamed parts, that lead patients to continue its use. I have noticed that patients making favorable reports concerning the Weber douche, are almost universally a class whose nasal cavities were clogged by inspissated secretion, and who suffered in consequence of catarrh arising from the inflammation, and not of that class whose nasal complaint allowed a free passage for respiration.

Commonly, physicians in reporting favorable results attending the application of this douche in a very bad case, say, as Dr. Thomson said: "It is really surprising what an amount of sordes will sometimes be removed from the nose by this rinsing process; or, that great masses of hardened offensive secretions are washed out, and that this relieved the patient of an ever present weight in the head."

Such expressions as these might lead the readers of the report, as I led me, to presume that if this method of treatment could produce such a marked, beneficial result in so bad a case, it would certainly cure one that was but slightly affected. But the facts are, that where relief and cure are concerned, the very reverse of this takes place. The cases of catarrh with profuse discharge are *relieved* for a few hours, but *never cured*, and those who are but slightly affected, are *aggravated* by the absorption of water immediately after its use, without experiencing any relief.



**562 (b).** The usefulness of this method of washing ends with the partial relief of patients whose breathing space through their nostrils is much impeded by inspissated secretion. The disease is not even checked, because the surface whence the crust is removed is not cleansed.

**563. Experience with the Weber douche in 1863.** I will now relate a part of my own experience in the employment of this kind of a douche, that the circumstances which led me to the discovery of its inefficiency may be known, and the reasons for abandoning it more fully appreciated.

In January, 1863, while stationed in the U. S. Gen. Hospital at Jefferson Barracks, Mo., I had two patients under my care who were suffering from nasal catarrh. I directed them to wash their nasal passages with various solutions, using, as a means of application, a Mattison soft rubber syringe. Other patients, noticing the applications, requested to be treated for a similar complaint. During that year and the following I treated, or attempted to treat, in all, 68 patients. The failure to do more than maintain a passage through the nostrils on numerous patients, that occurred as far back as Sept., 1855, led me, in January, 1865, to open a correspondence with a class-mate in Boston, who had recently visited the hospitals in London and Paris. From him I learned of Dr. J. L. W. Thudicum's article on a "NEW MODE OF TREATING DISEASES OF THE CAVITIES OF NOSE," which appeared in the *London Lancet* of Nov. and Dec., 1864.

These articles contained a full description of the Weber Nasal Douche, which for many years afterward was called, "Thudicum's Nasal Douche." A list of remedies were given, with *general* directions for their use. I have *emphasized* the word "general" for the reason that I, as well as other physicians—because of the absence of specific directions—was compelled to "guess" at the proper strength, etc., of the remedies recommended, and the length of time to employ them at each treatment. As we invariably failed to get the beneficial results he so confidently claimed, we concluded that the failure was due to our own obtuseness. So, after each failure we varied the remedy the strength or the time of using it. By the time we made three or four variations, and were ready to make others that might bring success, our patients left us, saying they were made worse instead of better. Those physicians who had large experience in the treatment of these cases, and who took a "matter of fact" view of the method, denounced it in the medical journals, and demonstrated its fallacy in medical societies, while those who thought, or rather knew, that every positive assertion that came from the Eastern side of the Atlantic could not be wrong, denounced the men who denounced the "Thudicum



Nasal Douche." At least, after almost a score of years in complete failure, without retracting the hard words heaped on the discoverers of the inefficiency of the plan, and without acknowledging that it was a dangerous method, every one of Thudichum's friends except a few who had little or no experience in its use, have thrown aside the so-called "Thudichum Nasal Douche."

The tone of Thudichum's article was so confident and so assuring, that I was ready to conclude with my friend, that at least we had a scientific means of combating this complaint, which had heretofore baffled all endeavors. At the time I received the two numbers of the *Lancet*, I had six cases of nasal catarrh in my ward. So certain was I of curing them by this method, that I wished I had sixty instead of six.

**564. First effect of the Weber douche pleasant.** The patients at first were greatly pleased with the effects of the douche, and I could see that the prominent symptoms were much abated, as shown by large crusts being removed, and the nasal space for respiration increased.

After a few weeks treatment, I noticed that it was only those patients from whose nostrils flowed large quantities of muco-purulent matter during the night, that continued to give favorable reports.

**564 (a). Secondary effects of the Weber douche injurious.** About four months after, one patient, on whom I had made numerous applications, refused to have it applied, because, as he claimed, it caused intense pain in the left cheek and in his forehead. Soon after this, another patient informed by that it had nearly the same effect on him, and further that the secretion from his nose and throat was more profuse than at any time during his life, his catarrh being but a slight one when I commenced to douche him.

The first patient that was injured had an inflammation of the antrum of Highmore, on the left side. He insisted that the douche caused it, but I did not think so at the time, because, on examining his teeth, I found the second upper molar, whose fangs sometimes penetrate the floor of the antrum, was decayed. I extracted this tooth and treated the diseased antrum through the opening made by the plug. The case, so far as the diseased sinus was concerned, recovered in about five weeks.

As I thought the decayed tooth originated the inflammation of the antrum, I urged the patient to allow me to use the douche again. He refused, and I had made but four applications, when a severe inflammation of the same antrum ensued. The second patient who had an inflamed antrum, recovered without special treatment. I merely left him alone; and it may be noted that his catarrhal symptoms also improved upon non-interference.



I discovered that about this time, that the douche had a good effect on cases suffering from profuse discharge, and had an injurious effect on those who had but a small quantity of secretion, and that in a fluid condition.

**565.** In order to ascertain the reason for the difference in the effects produced by the saline treatment, I made a **post mortem examination** of a patient who had died suddenly of paralysis. He had had a profuse catarrh, and had been treated by the douche for about three months, having had daily applications made for about ten days, and the rest of the time, every other day. He experienced great relief when it was first employed, and he felt certain that he would ultimately be cured, notwithstanding he had been regularly douched for three months, and his head (according to his request) washed out six hours before his death. I was astonished to find, during the post mortem examination, that the posterior surface of the superior half of the nasal cavities was encrusted with old and exceedingly offensive secretion.

**565 (a).** Having made an **antero-posterior section of the head**, I cut a large opening in the septum nasi, and placed over it a piece of window-glass, large enough to cover it. I then inclined the half head forward, as directed by Dr. Thudichum, inserted the rubber tube into the nostril and caused water to flow into the cavity, in the same manner that I had done in the treatment of my patients. Through the glass septum I saw that the water reached only the level of posterior nasal opening (c, figure 64), and that it could not reach the superior and posterior surfaces of the nasal and pharyngo-nasal cavities.

**566.** This experiment—made Sept. 1865—at once **solved the mystery**, as to how this form of treatment produced beneficial effects in cases of profuse catarrh, while never checking the formation of purulent secretion either in cases of a severe type or in mild ones; that is, the cleansing solution or the medicated solution, as the case may be, never reached the location of the primary affection,—the superior surfaces of the nasal chambers.

**567.** As the medical journals continued to praise this method, and as it was the best known, I continued to use until June, 1866, at which time I had two patients (I was then in private practice) whom I injured by its use. One of them suffered so intensely from otitis media that I perforated the membrana tympani; the other had an inflammation of the antrum of Highmore.

In September, 1868, I treated two patients whose ears had been injured by this douche. In both of these cases, perforation of the membrana tympani had occurred as a result of the injury. One of



man was seriously ill for four weeks from an inflammation of the mastoid cells.

At this time I called the attention of the members of the St. Louis Medical Society to the inefficiency of this method, showing by means of drawings on the black-board, how the water failed to reach the upper and posterior surface of the nasal cavity.

In 1869, I treated two cases whose ears were injured by its use. One had serious inflammation of the left mastoid process, it being greatly swollen and required a free incision to afford relief.

In 1870, I had five cases who were injured by this apparatus.

In 1871, I had only one case which had been injured by it. He had been using it about four years, and had noticed that whenever he had a bad cold in his head the water was liable to go into both ears.

In 1872, I treated four cases injured by this means.

In 1873, I had two cases.

In 1874, I had six cases.

From 1875 to 1880 inclusive, I had 148 cases, whose ears, antra and frontal sinuses were more or less injured by this douche. Since 1881, the number of cases injured has decreased remarkably. I have had one case from June to Oct., 1885, and but three cases in 1887 up to July, showing that this once vaunted apparatus is surely passing away.

Connected with the history of very many—by far the great majority—of my patients, I have noticed this fact, namely: that their ears and antra were in a more or less inflamed condition before the applications were made, which, to a degree lessens the censure that might be attached to this method of cleansing the nasal passages.

**567 (a).** In all cases where there were evidences of a diseased condition of the ear, except in those who previously had perforation of the membrana tympani, if they did not swallow, thus preventing the entrance of water into the middle ear, the employment of this douche did not produce acute inflammation of the ear. Those patients whose membrana tympani were perforated were unaffected, even if the act of swallowing was performed while the water was in the pharyngo-nasal cavity.\*

Even if it were not possible to select patients who ought not to use this method, I would not consider this a sufficient reason to condemn it; provided, it had a salutary effect on all those whose ears and antra were uninjured by it; but since it proves a serious injury to some patients, and signally fails in every case to reach the locality in

\*I think it barely possible for water to enter the middle ear, if the membrana tympani is perforated, as there is no rarefaction of air to assist the entrance of the water.



which the disease originates and exists, thus returning no compensation for the injury done to uninfamed mucous membrane by its absorption of water, then, surely, its use should be discontinued.

**568. Catheter Nasal Douche.** After duly noting the inefficiency of the Weber douche, and other means usually employed, I devised an apparatus in June, 1867, that I have called the catheter nasal douche, which is fully illustrated and described in figure 65. It throws a course spray of liquid from the floor of the nasal cham-

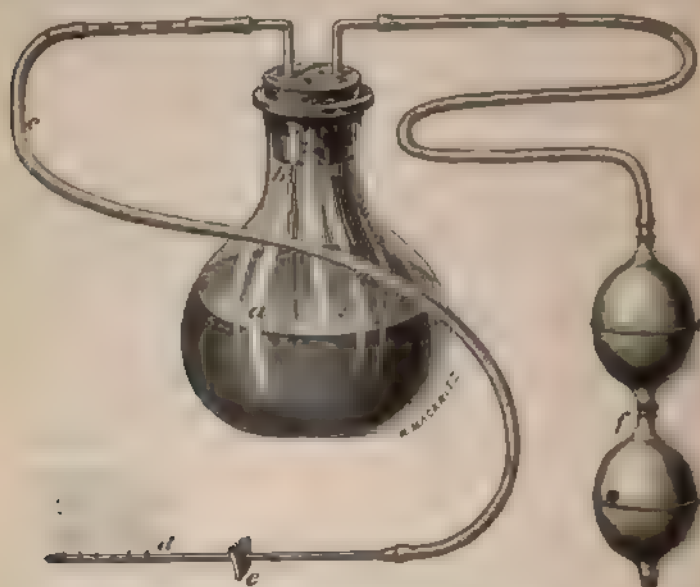


Figure 65. Catheter Nasal Douche : *a*, container ; *b*, metal tubes for passage of the liquid, the *letter* is placed beside a small aperture in the side of this tube which is to allow the entrance of air ; *c*, supply tube, which is made of soft rubber and glass tubing ; *d*, catheter with foramina for the escape of air and liquid ; *e*, triangular piece of soft rubber, perforated and slipped on the catheter ; *f*, india rubber air bulbs used to force air into the container *a*.

ber upward, reaching every portion of the irregular surface of the cavity, making effective and direct local application. If warm salt water is used, the only sensation is that of slight tickling.

**569.** The apparatus consists of the following parts:



The vessel containing the cleansing liquid is a flask-shaped bottle, (figure 65), of a pint capacity. Into the soft rubber stopper are inserted two metallic tubes, whose outer extremities are bent at right angles, and turned in opposite directions. The shorter one of these tubes is long enough to pass through the stopper, and has attached to its outer extremity India rubber air bulbs (*f*). The other metal tube (*b*), extends nearly to the bottom of the container (*a*); attached to its outer extremity is a discharge tube (*c*), which is about twelve inches long. It consists in part of soft rubber tubing, and part of glass tubing, which last is about three inches long, and forms part of the first third. To the outer extremity of the discharge tube (*c*), is fastened a No. 5 or No. 6 flexible catheter, (*d*) six inches long, at the further end of which are five or six small holes, three-eighths of an inch apart, in a line with its axis. The free extremity of the catheter is closed and made smooth, so as not to cause the least irritation when it is placed in the nostril. A triangular plate (*e*) of soft rubber with one inch margins, is perforated and slipped on the catheter, about three and a half inches from the closed extremity. This plate prevents the liquid from flowing on the operator's hand, and serves to direct the stream as well as to regulate the distance the catheter is inserted into the nostril. See figure 65). The metal tube that dips into the fluid, has a small aperture (*b*, figure 64), in its side, just under the rubber stopper.

This opening allows air to enter during the passage of liquid up the tube, the design of which is to cause the stream to break into beads of air and water alternately. These beads of air and fluid should be about one-half an inch long, consequently equal in size; then when the air and solution escapes from the openings in the catheter (*d*), it will be a coarse spray. The relative size of the beads of water may be ascertained by inspecting the glass portion of the discharge tube (*c*), after the stream has been suddenly arrested, by compressing the



rubber tube near the catheter. If the air beads are larger than the water beads, then the aperture (*b*) under the rubber stopper, in the long metallic tube, is too large, but if the air beads are smaller than the water beads, then the aperture is too small. In either case the aperture should be changed, so that the beads of the two will be about equal in size.

**570. The manner of using the Catheter Nasal Douche.** The catheter should be introduced along the floor of the nasal chamber, as illustrated in figure 66, with

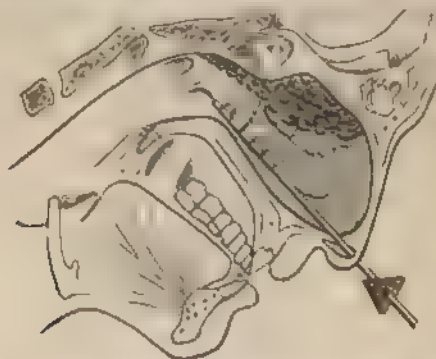


Figure 66. Antero-posterior section of the head, showing the catheter introduced into the nasal cavity, and the direction of the coarse spray. The triangular piece of rubber *e*, on the catheter will indicate the distance the catheter is introduced and the direction that the stream is taking.

the foramina upward, into the nasal passage containing the hardened secretion. Air is then forced into the container (*a*, figure 64) by compressing the lower air bulb (*f*). This condenses the air in the container and drives the solution into the discharge tube (*c*) and out at the foramina (*d*) in the catheter. The solution will leave the catheter in a coarse spray and go almost directly upward, reaching the highest portion of the nasal chamber, removing all the catarrhal secretions from their lodging places upon and under the turbinated processes.

The catheter should be slightly rotated along its axis. The cleansing may be made more speedy by the patient closing the nostril not treated, and then giving a quick



forceful blow out of the one being treated. This will expell the liquid and everything loose, with considerable force.

**570 (a).** A nasal guard, illustrated in figure 67, is fitted on the head so that it may be placed under the nose, will prevent the solution and catarrhal secretion



Figure 67. Nasal Guard to prevent the outflowing water and mucopurulent secretion from falling on the clothing of the patient.

from falling on the lips and from soiling the clothing, when the patient is blowing his nose.

**571.** This is a much milder method of treating the nasal chambers than can be done by a continuous stream from any form of syringe, applied either in the anterior or posterior nasal openings, and evidently much more effectively than could be done by the Weber nasal douche.

**571 (a).** The catheter nasal douche, possesses the three essential requisites, namely:

- 1st. It does not produce irritation.
- 2nd. It throws the stream of liquid to all parts of the nasal cavity.
- 3rd. It has force enough to remove all hardened secretion, and to cleanse the surface after its removal.

**572.** The apparatus is entirely under the control of the person operating it. The coarse spray may be thrown with just a sufficient force to strike and remove the in-



spissated secretion; then only sufficiently hard to cleanse the surface after their removal.

**573. How much liquid should be used?** The amount of liquid employed is a matter of the greatest importance.

Bearing in mind that the mucous membrane in its healthy condition, *absorbs, to its injury, more or less of every liquid that comes in contact with it*, causing it to become swollen, in which condition it is more susceptible to injury from out-door atmospheric influences. Hence the application of water should be discontinued immediately after the hardened secretion is removed, even though a continuation of the washing produces a pleasing sensation.

If, at any time, the force of the stream produces pain, lasting longer than one or two seconds, the application should be discontinued even though the passages are not entirely cleansed; but if the pain last longer than one minute, the douche must be deferred for several hours. At any time the application is resumed, it must be continued with only such force as will occasion **no disagreeable sensation**.

**574. Important.** It is a matter of the greatest importance, as has been already stated, that the quantity of fluid should be as small as will relieve the parts of the accumulated secretion.

When the secretion has ceased to be hard, the use of the catheter nasal douche should be discontinued, and the suction of water into the nostrils from the hand or from a sponge should be substituted.

**575. The solution used.** The irrigating solution is made by dissolving in one-half pint of water a little warmer than blood heat, about one-half teaspoonful of common salt. Patients will soon learn from experience whether or not this is the right strength and temperature; water, either without salt, or with too much in it, produces more or less pain, but with the right quantity. — slightly with different persons, it produces



a pleasant bland sensation. Cold water causes a disagreeable as well as an injurious effect.

**576. INSTRUMENTS FOR MAKING APPLI-  
CATIONS.** The great majority of patients do not require to have their nasal passages cleansed by either of the methods just mentioned, namely; the suction of a cleansing liquid into their nostrils, or the application of the catheter nasal douche. A small number may require the use of these means for a few days or weeks at most, but generally the usual daily treatments will be all that will be required. But should it be found that these will not cleanse the surface, then one of these two methods should be employed.

**577. The four essential requisites** that the means for cleansing the nasal passages should possess, must also be possessed by the means employed for making local applications, namely:

**First;** they should make applications without causing irritation.

**Second;** every portion of the diseased surfaces within the nasal and pharyngo-nasal cavities, the pharynx and larynx, should be treated.

**Third;** they should exert force enough to remove all morbid secretion on the diseased surfaces.

In addition to these, there is a **fourth** requisite, without which it is not possible to make a successful application, namely: the apparatus for making applications must be so constructed that the medicament can be applied in a warm condition.

**578. Cold applications** to these cavities and passages are always irritating; therefore every medicament should be applied so warm that the patient will be conscious of it. Warm applications cleanse more quickly and thoroughly, and are always much more pleasant, as well as far more likely to reduce inflammation.

**579. Non irritation.** Those of experience in the treatment of chronic catarrhal inflammation of the nasal



cavities will see the necessity for carefully avoiding everything that will cause irritation. If either the means of making the applications, or the remedies that are applied, cause irritation, they should be discontinued at once.

Not unfrequently a remedy would, doubtless, prove beneficial, were it not for the irritation occasioned by the rough manner of applying it: for instance, with such an implement as a piece of cotton wrapped around a stick, known by the euphonious name, "swab."

**580.** It is self-evident that **every portion of a diseased surface should be reached**, and that those portions not reached are not benefited; yet almost every instrument or apparatus used by the general practitioner, and even those used by the great majority of physicians, who limit their practice to these diseases, fall short of this object.

**581. Eleven popular methods of making local applications that are condemned.** I will now carefully examine a number of the methods whose general, nay almost universal employment, has led not only the profession but the laity to say nasal catarrh is incurable. They are:

- (a) Gargles.
- (b) Inhalators of vapors and insufflators of powders.
- (c) The swab.
- (d) The probang, armed with a sponge, brush or ball of cotton.
- (e) Application of solid substances.
- (f) The syringe.
- (g) Steam spray producers.
- (h) Spray producers for throwing cold aqueous solutions.

The bad effects of the use of the posterior nares syringe and the Weber nasal douche have already been discussed in topics **554(a)** and **555**.

Now let us examine carefully and see whether all or any of these eleven different means do or do not possess the four essential requisites given in topic **577**.

**582. (a), Gargles.** This method reaches the tonsils, the anterior surface of the soft palate, the base of the tongue, almost as far back as the epiglottis, and a small unimportant portion of the posterior wall of the pharynx. Even if patients do, after many efforts, throw



ness of the fluid into the pharyngeal cavity and out through the nasal passages, the fluid only *flows* over the tenacious secretion, without having force enough to remove it. It is evident that this method cannot be relied on in the treatment of chronic catarrhal inflammation; it does not possess force enough to free the surface of the irritating matter.

**583. (b), Inhalations of vapors and insufflations of powders.**

Almost every work that has been published within the last ten years on diseases of the nasal passages and throat, contains full directions for making applications of vapors and powders for the cure of chronic catarrhal complaints of the air passages.

Inasmuch as I know from extensive experience that both of these methods for applying medicaments are not only *worthless*, but *injurious*, I will thoroughly analyze the whole subject, i. e., describe briefly the condition of the diseased surface they are to affect beneficially; show *how* they should affect this surface, and then show *how* they do affect it. In thus demonstrating the inefficiency of inhalations and insufflations, I will show that they must do harm in every instance, even if the agents used are the best that could be selected; proving conclusively that the failure is due wholly to the methods themselves. I will go farther; I will prove that the agents usually employed are deceptre and always injurious.

**584. Inhalers.** In the early part of 1868 I saw, in Cohen's work on inhalations, published in 1867, a lucid description, with an illustration, of Lewin's (Berlin) method of making and applying nascent carbonate of ammonia. This method of applying this salt to the diseased mucous membrane appeared so scientific and was so highly recommended, that I had an elaborate apparatus prepared, and employed it for nearly one year on a large number of patients; consequently, my knowledge of its effects is not merely theoretical, but experimental.

As this method is again being revived, I will quote Cohen's description of Lewin's apparatus, to show that what I used in 1868 and what is now being used are one and the same.

"This apparatus (fully illustrated on page 251) consists of a series of three glass bottles. One of these contains liq. ammonia caustic, another pure muriatic acid, and the third bottle, which is filled with water, receives a tube from each of the other bottles, these tubes reaching to the bottom of the water, and from a third opening in the cork the vapor extrudes through an exit tube, which is attached by india rubber tubing. Now, as the effort of aspiration draws the liquids (vapors) from the first two bottles, into the third bottle, their ingredients combine to form the sal-ammoniac vapor, which, during its passage through the water, becomes cleansed of impurities. If it is desired to medicate the nascent sal-ammoniac with creosote, or an oleo-balsamic matter, or bitter almond water, etc., all that will be necessary, will be to add the water in the third bottle."



I followed these directions to the letter. In the third bottle—the one from which the patient inhaled the nascent muriate of ammonia—I put the “oleo-balsamic mixture, bitter almond water, etc.” The “etc.” consisting of almost everything that will evaporate and not do harm; but the three agents that gave the greatest satisfaction to the patients were carbolic acid, cubebs and sassafras bark, named in the order in which they produced the most relief.

584 (a). I found in a month or two that the patients were under the influence of a continuous cold in the head, a symptom that many of them had not before experienced. I then gave the inhalations but once a week, and in the interval I applied, by means of such spray producers as would treat the pharyngo-nasal and nasal cavities, about one half dram of the following mixture: saturated solution muriate of ammonia, tincture of iodine, and tincture of aconite leaves, of each  $\mathfrak{z}\text{j}$  and water  $\mathfrak{z}\text{viij}$ . Gradually I lengthened the interval of the inhalations, until I stopped them altogether in the early part of 1869.

584 (b). The first few times these inhalations were used the patients were greatly pleased with them; but the pleasant effects soon degenerated into unpleasant effects, which, with the increase of symptoms of acute inflammation, proved to me that the method was an injurious one.

The Crosby inhaler, and the one now popular in London (I have



Fig. 68. The Brady Inhaler.

Figure 68. Brady's Inhaler. It is seen that this apparatus is made on the same principle as Lewin's. There are about fourteen of a similar make. The present is a "making" one and sells more instruments than any of its numerous certificates written by regular M. D's.

for-gotten the name of the claimant of the London apparatus) and very highly recommended by an ear surgeon of some note of that city.



are apparatuses for the formation of nascent muriate of ammonia, and are precisely alike in principle to the one used by Lewin, in 1862. The London apparatus is so constructed (see Fig. 69) that one bottle

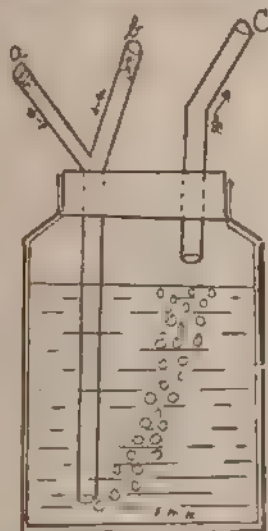


Fig. 69. An inhaler highly recommended in London.

that is required. Through the cork of the London apparatus are passed two tubes. One is Y shaped, the lower portion of which passes to the bottom of the liquid in the bottle. In one of the projecting arms of this Y-shaped tube is placed a small sponge, on which is poured muriatic acid; into the other arm, another small sponge, on which is poured aqua ammonia. The other tube just passes through the cork and is used by the patient for inhaling the vapor from the bottle.

Each of the inventors (?) has placed in the fluid that is in his bottle some agent that is intended, apparently, to enhance the value of the muriate of ammonia, such as **carbolic acid, cubeba, camphor, tincture of iodide, chloroform**, and such like.

The strength of the carbolic acid is always sufficient to produce an anæsthetic effect. Anything short of this would not serve the sellers' purpose, which is, to secure to their purchasers a relief of pain occasioned by their catarrhal disease; but whenever this anæsthetic effect is induced, it ALWAYS INCREASES the existing congestion of the nasal membrane. I am very certain I am right in making this assertion. Not only does carbolic acid increase congestion, but if an irritating agent, as tincture of iodine, is also put in the inhaler, the patient is not warned of the injury done by it by any pain felt on its use, since this is covered by the benumbing effects of the acid. Some of



the liquid compounds are formed, in part, of chloroform, which will certainly cover all irritation excited by iodine. That iodine vapor is injurious, may be easily proved by inhaling it alone, the immediate congestion of the mucous membrane, and the increase in the flow of mucus, makes it apparent.

**584 (c).** Only those who have inhaled the vapor of cubeba and camphor into their own nostrils, know how very liable they are to **take cold**. Hot water baths are not more certain to induce colds, than cubeba and camphor.

**585. Insufflators, or powder blowers,** are far more popular than inhalers. All the agents that are employed in Inhalers, except chloroform, the least objectionable one, are also used in insufflators. In fact cubeba, camphor, iodine, and carbolic acid, are the principal medicaments upon which our latest works on diseases of the nasal passages depend for the cure of chronic inflammation.

It is admitted that vapors from an inhaler, and powders from tubes called insufflators, can be made to pass through the nasal chambers; and not only this, but they can be thrown upon every portion of these irregular surfaces. But experience has proven time and again, that they have not cured chronic catarrhal inflammation.

Why is it that these methods do not cure?

Some may say, "If every portion of the nasal chambers is reached, the failure must be due to the fact that the wrong agents are employed." Unfortunately this does not explain the cause of the failure, as **EVERY ARTICLE** of the materia medica that could be used without doing positive injury, has been applied by one or both methods, and with the same result—**A COMPLETE FAILURE.**

**585 (a).** It seems to me that this indicates that the objects to be attained and the means of attaining them are not understood, or, in other words, that what must be done to cure chronic nasal catarrh, and how to do it, are unknown. An understanding of these two subjects is the solution of the whole difficulty.

I will endeavor to answer the following question:

What should these two methods do to assist the healing tendency of nature to effect a cure?

**586. Catarrhal surface coated with secretion.** Every one familiar with the appearance of a chronically inflamed mucous membrane, knows that it is coated with a thick, tenacious secretion, and, in the worst cases, this muco-pus forms crusts. Many years of experience has convinced me that success will depend upon the removal of this closely adhering coating, which, besides being a constant cause of irritation and a source of great annoyance, if not of pain, prevents the medicament from reaching the diseased surface, which is a most important matter, and is the subject under discussion.



Now, it is self-evident that the **inhalation of a vapor** either warm or cold, or the **insufflation of a powder cannot cleanse** a surface that is even but slightly coated, and as to its cleansing surfaces covered by secretions, some of which adhere so tenaciously that



FIGURE 70 Robinson's Nasal Powder Blower. It has three points, to blow in as many directions.



Figure 71. Clay's Powder Blower.

they can scarcely be removed by a brush, cannot be thought of for a moment; yet this is just what is expected of them, what they should do, and **WHAT THEY MUST DO**, if the case is to recover by this kind of treatment.

I venture to say that it is now not difficult for the reader to understand why inhalations and insufflations always fail.

Besides this palpable and extraordinary oversight, made by almost every author, there is another, nearly as great. It is this: In the immediate neighborhood of the inflamed parts, there are extensive surfaces of healthy mucous membrane; and this membrane is constantly moistened with a **VERY THIN** coat of healthy mucus, which is watery in consistency. I have not emphasized the words "very thin"



accidentally, but intentionally to indicate the extreme attenuation of mucus on a healthy mucous membrane.

**586 (a).** Chemico-physiologists are still doubtful as to the exact chemical composition of healthy mucus, for the simple reason that it is impossible to collect a sufficient quantity of pure mucus to analyze it, proving, conclusively, that the quantity on the healthy membrane is only sufficient to moisten it. Not the least redundancy is to be found on the surface. Now, let us apply this fact to the effect of vapor and powders as they are usually employed.



Figure 72. Lefvert's Nasal Powder Blower.



Figure 73. Lefvert's Powder Blower.

**586 (b). Healthy surface always injured.** A vapor or a powder instantly affects the healthy mucous membrane through this exceedingly thin coating of healthy mucus; but, will even a pungent vapor or a sharp powder pass as quickly through a thin coating of catarrhal secretion? No! Will a vapor pass through it at all? No! Will a powder pass through a coating of thick, viscid mucopus? No! I know from observation that a powder may remain there for hours and days without producing the least effect. What will be the effect of these agents on a surface covered with a crust? Simply no effect.

The rain falls upon the just and unjust, so, with like impartiality, does the vapor or powder light upon the uncovered (healthy) surface and the covered (unhealthy) surface, but their effects upon these two different surfaces stand in marked contrast to each other.



**586 (c). All medicaments must be dissolved.** A vapor or powder can produce no effects upon the nasal cavities unless it reaches the mucous membrane by being first dissolved by the mucus that is on the surface to be treated. Surfaces covered by crusts are, of course, not effected in the least by either agent, as it has no secretion that will dissolve it; yet this very surface is more in need of treatment than any other. The surface covered by a semi-fluid, tenacious mucopus, can be treated only by the vapor or powder being dissolved by this thick secretion. A state of solution is necessary. It would be to say that no vapor, however pungent, penetrates this mucopus, and it is also safe to say that a powder may remain on it for days without effecting the membrane covered by it. Can it be said that the exemption from the effects of the vapor or powder, is extended to the healthy mucous membrane? No indeed! The healthy mucus instantly forms a solution of both, so that the healthy membrane is as instantly injured by it. I presume no one will say that a healthy mucous membrane may have a medicated vapor or powder applied to repeatedly, without injuring it.

**587.** "But," says a friend of these methods, "I have seen crusts as well as semi-fluid secretion removed by both inhalation and insufflation! How do you account for that?"

In this way: The vapor and powder always act as irritants to the healthy mucous membrane, because the mucus on this healthy membrane dissolves it at once, as has been said, and in the instances where these accumulations were removed, the irritation must have been of such an aggravating character, as to be sufficient to excite an unusual flow of mucus from the whole surface of the nasal chambers; that is, the mucus is forced out from that portion of the membrane that is covered by the crusts and semi fluid secretion, as well as from the healthy, uncovered membrane, and this unusual flow of mucus washes away a part of the adhering muco-purulent collection; but it never washes it ALL away. That I am right as respects the way in which the cleansing is brought about, is proved by the fact, that these solid and semi-solid accumulations come away LONG BEFORE a powder could have passed through them to produce such an effect on the membrane to which they adhered. Again, a vapor, an agent that no one will say can pass through these secretions, will in precisely the same way and in the same time, remove these accumulations.

**587 (2).** In the light of what has been said, what must be the answer to the following two questions?

1st. Have the diseased portions of the nasal cavity that have been treated by the inhaler or insufflator, been benefited or irritated?

The answer must be: A surface thus covered could derive no benefit from a vapor passing over it. The duration in the passages is



too short, and a powder would not remain there long enough to be dissolved by the catarrhal secretion, so as to have sufficient strength to exert a healing tendency, because the portion of the powder that fell on the healthy mucous membrane, would cause enough irritation to wash the secretion, with the undissolved powder, out of the cavity. It is seen that the diseased surface is not irritated by the medicament applied to it, for that could not reach it, but by that applied to the healthy mucous membrane in its immediate neighborhood.

**587 (b).** 2nd. Has the healthy mucous membrane been benefited or irritated?

I should like to know which horn of the dilemma the advocates of inhalation and insufflation will take? For either will injure their cause. They do not wish to be understood as making applications to a healthy surface with the expectation of improving it. They can only say they unavoidably irritate the healthy surface, while irritating the diseased membrane sufficient to compel an unusual flow of mucous to wash away an offending secretion.

"But," says one, I deny that there is any healthy mucous membrane in a catarrhal nasal cavity."

Will he in this way answer the two questions just given? Not likely. Even if his knowledge of the condition of a catarrhal nasal cavity is limited, which would be indicated by this denial, he must admit that there are portions of a catarrhal cavity that are far more inflamed than others; that is, there are parts that are not covered by semi-solid and solid secretions. This being the case, as all know, let him answer the questions as to the treatment of the less or more inflamed parts, by a method that treats the diseased parts by producing disease in the healthy parts! Can any one intelligently and seriously recommend such a course of treatment?

It is therefore plain that the surface that does not require treatment, receives it, and that the injury done to the healthy surface is much greater than the benefit done to the unhealthy surface; for the former will take on an inflamed condition very much faster than the latter will resume its normal condition.

**587 (c).** Some one may suggest that, if the catarrhal secretions is first removed, might not a vapor or a powder have beneficial effect?

I have already answered this question, and shown that the vapors and powders I have mentioned (and they are the most popular), are harmful in whatever way they may be employed. It is impossible to apply remedies by these methods to diseased surfaces alone, and the healthy surface will always be injured by medicated powders. Even the mildest kind of a powder will cause irritation of a healthy membrane by drying its surface, which is not its normal condition, that being one of perpetual moisture.



If a patient's nasal passages are cleaned first, and a powder applied next, the case will be over treated, that is the healthy surfaces—which are far more extensive than the diseased surface—will receive as much treatment as the diseased surface, and the result will be that the patient will soon complain of new symptoms, the result of the applications of the powder to the healthy surfaces.

**588. Vapors** can effect only the healthy surfaces, and as those do not require medication, why continue the use of the Cutler inhaler, the London inhaler or similar apparatus? No method should be employed that does not cleanse the catarrhal surfaces; at the same time it must not irritate the healthy surfaces.

**589. (c), The Swab.** A small strip of wood; around one end of which is wrapped a cotton rag. This end is dipped into the medication, and then thrust into the throat and made to swab the parts that seem to be the most inflamed.

This semi-barbarous treatment is used mostly in children. Its application must cause excessive irritation, nor can it be made to reach that portion of the mucous membrane that is diseased; hence there can be no justification for its employment.

**590. (d), The Probang Armed with a Sponge, a Brush, or a Ball of Cotton.** The sponge when it is used, is made to apply rem-



Figure 74. Granger's Sponge Holder.



Figure 75. Wagner's Brush Holder.

eds to the fauces and larynx. The cotton ball, known to some as the "applicator," is employed for the treatment of the pharyngo-nasal and nasal cavities. The sponge is not as frequently resorted to as formerly; since the brush now takes its place, and is generally used in patients having pharyngeal and laryngeal symptoms.



**591.** The sponge is a harsh means for making applications. A inflamed mucous membrane can be touched by it without increasing the inflammation. This fact is sufficient to condemn it.

**592. Imperfect application.** While the same objection cannot be urged against the brush, yet it as imperfectly applies to either liquids or powders. For instance, if a circumscribed spot in the pharyngo-nasal cavity, or the pharynx, is to be touched, it cannot be done without touching other parts also, because the fauces as soon as the touch is made, spasmodically grasp the instrument, and thus apply the remaining medicated liquid or powder to every portion of the presenting parts.

**593.** Even if the whole surface is to be treated, it cannot be efficiently done, for the reason that so soon as the patient feels the contact of either the probang or brush, **contraction of the muscles** will ensue, thus completely closing the passage to be treated. This spasmodic closure will be but partially relaxed while the patient is making expulsive efforts to eject the instrument by retching and coughing.

**594. Partial applications.** It is evident that only those parts of the mucous membrane that form the projecting folds, which close the fauces, receive the application from the sponge, brush or ball of cotton. One might as well expect to wash the palm of the hand clean by pushing the sponge, brush or ball of cotton between the fingers and the palm, when the hand is closed. In this instance, as in that of the throat or in the pharyngo-nasal cavity, the presenting ridges only receive the application, leaving those portions of the surface that form the creases between the folds untouched, hence not treated; and these untouched spaces form at least one-half of the entire surface of the passage.

**595. Irritation always produced.** Very frequently so much pressure is applied to the instrument in passing it into the larynx, or up behind the soft palate, especially with children and timid patients, that the presenting folds of mucous membrane suffers positive injury. Even if these instruments could be used so delicately as to cause almost no irritation; still the application must be imperfectly made on account of the spasmodic closure, already mentioned, of the parts touched, while in those passages that cannot be closed by muscular contraction, as the larynx and nasal chambers; the applications are still more imperfectly made. In the larynx, if the brush is not large enough to fill the entire cavity, the physician will be required to wait for a report of the effects of the application, before he is certain of his success in handling his instrument. There is no science in this, it is but the merest guess-work.

**596. Another very imperfect application.** It cannot be



desired that merely thrusting a slender probe, around which a small quantity of cotton has been wrapped, into the nasal cavities, so as to pass through the so-called lower and middle meatuses, is a perfect treatment of the entire diseased mucous membrane. Yet this is just the practice done in most large cities by physicians who limit their practice to these diseases. It is the result of this kind of practice that has taught the laity to say that nasal catarrh cannot be cured.

**597. (e). Application of solid substances.** Many experienced physicians think that an ulcer in the pharynx or larynx, or on the tongue, or the anterior surface of the velum, or the uvula may be benefited by being touched by a remedy that would be injurious to the surrounding tissue.

My experience does not agree with this practice. I question whether it is ever necessary to touch an ulcerated surface with a remedy that does not tend to remove the surrounding congestion—the cause around the ulcer.

It is well known that an ulcer is the result of a complete obstruction of the circulation in the part; it is also well known that the effect of a destructive agent is, to produce so intense an irritation as to cause further congestion. It is also well known that an ulcer will not heal until the circulation is re-established.

My experience is that when I succeed in relieving the irritation that produced the congestion, I always improve the appearance of the ulceration.

**598. Caustics not required.** I now treat every ulcer by direct applications to the surrounding inflamed surfaces, as will relieve the congestion, **not at once** the ulcer begins to improve in appearance. I have frequently seen this occur in ulceration of the larynx, in patients who afterwards died of lung disease. I treat syphilitic ulcers in the same way, giving of course, constitutional remedies at the same time.

**598 (a). Nasal Plugs.** These are generally made of some substance that slowly melts in the nasal passage by heat of the parts, and as the plug melts, the ingredients of which it is composed, is applied to the mucous surfaces. As this method cannot cleanse the nasal surface, it can be of no service. Again, it can only be applied to the lower portions of the nasal chambers, parts that are not greatly diseased, while the upper portions of the passages, that are always diseased, are not affected by the agent in the least, except in a secondary way, and that by increased irritation produced by the melting portions of the plug. As these plugs always have a little cube in them, this agent produces a cooling effect on the patient's nostrils, but the relief is deceptive, for the mucous membrane is far more apt to become affected by even a slight exposure to a cool draught of air.



**599. (f), The Syringe.** This instrument is employed in the application of either a solution or a powder. If a liquid, the quantity necessary to cleanse the pharyngo-nasal and nasal cavities, is so great as to choke the patient, even if he does bend his head forward. A smaller quantity is not sufficient to wash clean a chronically inflamed surface, while a quantity that would prove efficacious, besides choking the patient, is apt to be driven into the ethmoidal sinuses and antra of Highmore, thus inducing a strong susceptibility to cold from exposure in inclement weather. This is enough to condemn the syringe, without considering the injury done by the force of the stream required to remove the hardened secretions, and from the injury done to the inflamed membrane lining the posterior wall of the pharynx by the curved roughened extremity of the instrument.

**600.** An application of a dry remedy by means of the syringe, might prove beneficial if thrown upon a cleansed surface, but could not remove the morbid secretion, wherein consists fully one-half of the benefit to be derived from local treatment. The application of a powder to diseased mucous membrane, before it is cleansed, is but trifling with the patient. With this view of the matter, I do not see how the employment of the syringe can be advised.

**601. (g), Steam Spray Producers.** It will not take long to dispose of this subject at this day. But when I read a paper against their use before the St. Louis Medical Society in 1869, these instrument had many friends.

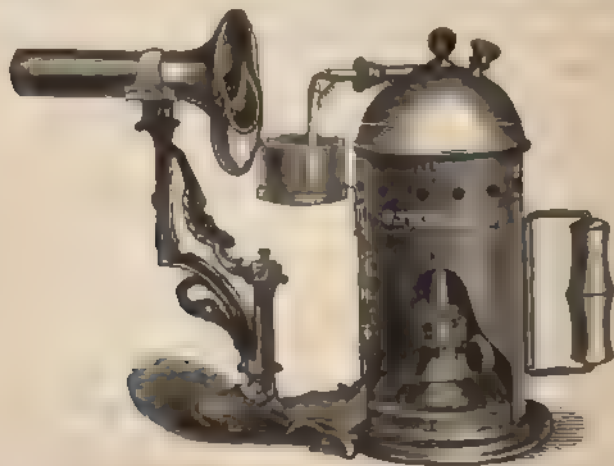


Fig. 75. Steam Spray producer.

As every pharyngeal and laryngeal trouble is secondary to nasal and pharyngo-nasal disease, it is easily perceived that the application



of a stream of steam and medicated solution to the throat will not produce a beneficial effect on cavities located above it, as the stream can not reach them. Besides this serious defect, the stream has a very bad effect on the mucous membrane of the parts reached by it.

**602. (h), Spray Producers for Throwing Cold Aqueous Solutions.** There are various kinds of these instruments. Some of them cause irritation by the force with which the solution is thrown. Instruments that exert such force are all made on the same principle as the richardson apparatus, figure 76. Some of them cannot apply



**Figure 76. Richardson's Spray Apparatus.** This apparatus has two or three points. Formerly these points were slipped on the distal extremity of the instrument and occasionally one was blown down the throat; latterly the points are held on with a screw joint.

remedy to the whole of the inflamed surface; and all of them are constructed that they apply the medicament in a cold state, it being almost, if not entirely, impossible for them to throw a warm stream. This is the chief objection to all forms of spray producers that take the medicated liquid from a bottle.

**603.** The Richardson spray producer, (figure 76), is commonly employed. The best quality that this instrument possesses, is its strength: it being made of hard rubber, is not easily broken. This quality recommends it to the purchaser—its efficiency is taken "on trust." It is so constructed that the air passes out at the distal extremity of the tube, and enters the bottle where it presses upon the



surface of the medicated solution, and the liquid and air are forced out of the same tube, making but a partial spray.

The construction of the instrument seems to indicate that the inventor attempted to make a spray producer, but was unsuccessful. He seemingly did not know the proper relation of the points of the tubes to each other, to create the partial vacuum necessary to raise the liquid out of the bottle; failing in this he turned a part of the air into the bottle and compelled the fluid to come out; partially accomplishing by force, what he failed to do by art.

The force of this injected liquid and spray is so great as to occasion pain. The stream not being entirely converted into spray, strikes the surface with greater force than if it were composed of air and spray, and the pain is increased by it striking comparatively so small a portion of the surface at one time.

Two and three tips are furnished with this instrument, one of which throws the stream in a horizontal direction, the other causes it to issue nearly at right angles with the tube. This tip may be slipped on the tube, so that the stream may be thrown up or down, to the right or left. Even could the whole of the diseased surface be reached by these tips, which is far from being the case, the great force with which the stream strikes the highly inflamed and sensitive surfaces, is sufficient to condemn the instrument.

The bulkiness of that portion of the instrument that should go behind the soft palate, is another serious objection. It is frequently impossible to introduce the curved extremity behind the velum, without causing its elevation and contraction, thus completely cutting off all avenue for the application to the diseased surface in the pharyngo-nasal and nasal cavities. Consequently, the physician will fail to benefit his patient; especially if he is under treatment for affection of the throat or ears, as the nasal cavity is always the primary seat of catarrhal disease of these organs.



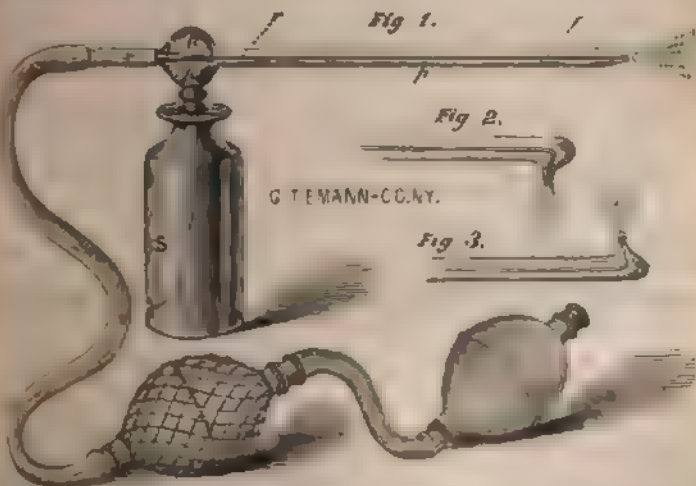
603 (a). Figure 77. This little instrument has deceived more persons, with sore throat, than any other of its kind within my knowledge. It is possible to warm the medicament, but it throws the stream in one direction only. Thousands of these instruments are sold every year by druggists; they give the purchaser three or four



prescriptions, stating that the medicines are similar to that prescribed by some celebrated physician. In this way a purchase is secured; and sometimes great injury is done. I had one patient, an editor, whose throat was not very sore, but for fear that it might get worse, used to take inhalations from one of these instruments three or four times daily. This he continued for about one week. At the end of this time his throat was sore on swallowing; soon there was continued soreness and excessive dryness. On discontinuing its use, his throat at once partially recovered, but did not entirely recover until after a protracted treatment.



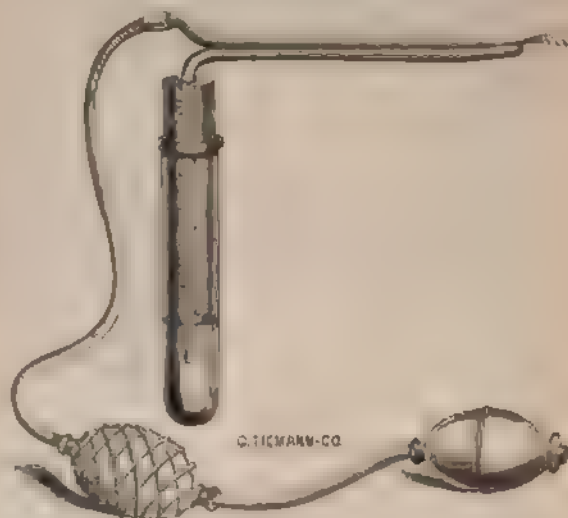
603. (b) Figure 78. Burrall's Atomizer. The medicated solution might be heated in this apparatus, and if the spray-points throw a stream in all the directions required, good and effective work ought to be done by it.



603. (c). Figure 79. Newman's Spray Producer. The same as the said of Newman's spray producers; but they are apparently



made to throw cold, aqueous solutions. These instruments are employed by quite a number of physicians, and if the bottle is well warmed—should be made almost too hot to be held in the hand—and the points so constructed that they can throw a stream into the posterior nares, then effective work might be done by them.



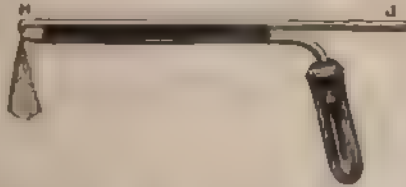
**603 (d).** Figure 81. Sasse's Atomizer. It would be very inconvenient to throw a warm spray with this instrument, for the reason that the physician could not hold the hot container in his hand.



**603 (e).** Figure 82. Hank's Spray Tubes. There are three instruments throwing streams in as many directions, as indicated by the illustration. If the physician desires to use only a very small quantity of medicated solution, they will fill every indication that is required, but if a warm spray is to be thrown on the inflamed surface, then they are dangerous instruments, for the reason that, in order to



throw a warm stream, the medicament must be heated up to the scalding point, so that the hot liquid may heat the cold air from the rubber bulb, and be, itself, cooled to the proper temperature by the cold air. If the medicament is heated to the proper temperature, and the point of the instrument should, by accident, touch the uvula or soft palate, the air will be instantly turned into the little container, and every drop of hot liquid would be thrown into the mouth of the patient, which would certainly scald him severely.



603 (f). Figure 83. The construction of this instrument is such that the medicament in the little bottle may be heated to the proper temperature, as the bottle need not be touched by the physician's hand. Of course there should be as many instruments as there are directions in which the stream of spray should be thrown. In 1868 the tubes that compose this instrument were held together by shellac, and would become soft if much heat were used. This is a serious objection to the instrument. Another objection is that the bottle is so small to hold medicine for three or four patients, and it is too difficult to remove when a new supply is required.

603 (g). There are many other instruments whose make are similar to those already described, and each has some fault, but the greatest is that they are formed for throwing aqueous solutions, and at a cold temperature. These are two serious faults, and they would prevent physicians from using them.

604. All applications should be warm. To successfully treat a chronically inflamed mucous membrane, it is essential that all remedies should be applied warm. A remedy that will have a soothing effect if applied warm, will occasion positive pain if applied when cold.

605. Spray Producers that are so constructed that a warm stream can be thrown on the whole of the diseased surfaces.

The only instrument possessing the four requisites



mentioned in topic 577, for successful treatment of the nasal and pharyngo-nasal cavities, the pharynx and larynx, **are spray producers that throw a warm stream.** This stream is composed of air and the medicament in a fluid condition, the latter very finely divided by the air. The inflamed or ulcerated surfaces are not touched by the instrument, but only impinged upon by the air and spray. It follows, therefore, that they are **treated in the mildest manner possible.** Hence, if the medicated liquid produces no irritation—and it should not—the only cause for contraction of the fauces, will be the force of the air and the finely divided liquid upon the surface, which sensation is so slight that patients soon learn—in a few minutes—to tolerate it. Thus there is abundant opportunity to make the application thorough enough to treat the entire mucous membrane.

606. It is evident if the passage continues uniformly patulous, as it always is when these instruments are used, the spray will blow and wash the muco-purulent secretions out of every irregularity, and FROM LOCALITIES THAT CANNOT BE REACHED BY ANY OTHER MEANS; not only localities that cannot be reached, but **those also that cannot be seen during life.** While the air is blowing these secretions away, the medicament is being thrown upon the cleansed surface; thus making the application more effective than can be done by any other set of instruments.

607. Not only do these instruments cleanse and treat at the same moment every portion of visible mucous membrane, but they do this to localities under the turbinated processes; surfaces that cannot even be seen during life, and **these unseen localities are the very ones that most need cleansing and treating.**

**These Instruments Combine with efficacious Cleansing, a thoroughness and Mildness in Making Applications, that is not Equalled by any Known Means.**



607 (a). The two points of each spray producer must bear such relation to each other that each instrument may throw a stream in a different direction; and the combined directions of all the instruments should be such as will operate upon the entire surface of the pharyngo-nasal and nasal cavities, the pharynx and larynx. These various directions are correctly delineated in figures 84 and 85.

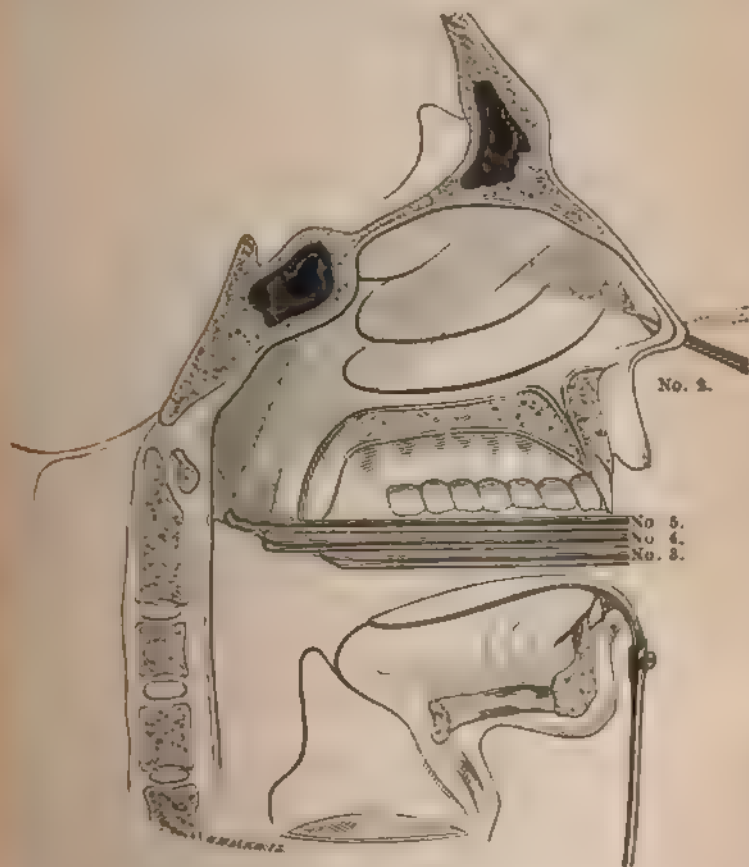


Figure 84. Antero-Posterior Section of the Head; showing the combined directions of Spray Producers No. 2, 3, 4 and 5, in the local treatment of the pharyngo-nasal and nasal cavities. The bowls or cups, are not shown on the spray producers. As seen, the point of each spray producer is in the proper place for effective local application. The No. 5 instrument must be made to almost touch the pos-



terior wall of the pharynx; the elevation and depression of the outer extremity of the instrument, will cause the spray to cover the extent of surface shown by the dotted lines. The No. 4 instrument should be placed midway between the posterior wall of the pharynx and the uvula.



Figure 85. Antero-Posterior Section of the Head; showing the combined directions of Spray Producers 1, 6 and 7. No. 8 throws the stream on the base of the tongue. These instruments treat the pharynx, larynx, and base of the tongue.

607 (b). The openings of the points of each instrument must be of such capacity as to regulate the quantity of liquid so that it is all made into spray, and the force of air should be made to suit the case. In treating a child,



whose secretions are always fluid, the quantity of liquid should be comparatively small, and the force of air should be only sufficient to blow off the secretions from the inflamed surface. At the age of 20 years, when the secretions are often in a semi-fluid condition, and adhere so tenaciously to the surfaces that their removal by a brush would cause great irritation, a stronger current of air and a greater quantity of liquid will be necessary to dislodge the accumulation; while at 40 years of age, the secretions are small in quantity, and less fluid, so that the surface is glazed; consequently requiring still more liquid and greater force to cleanse the surface, than at earlier ages.

**608.** As seen from these illustrations — figures 84 and 85 — each instrument can throw a stream in one direction only; and as the avenue to the extensive surface of the pharyngo-nasal cavity and the superior portions of the nasal cavities, is the narrow space behind the sensitive soft palate; and that to the larynx, behind the sensitive epiglottis, it will be necessary to use a number of spray producers to treat all of these surfaces.

**609.** My daily experience with these instruments, reaching back to June, 1866, has taught me that five spray producers are required to properly treat the superior respiratory cavities and the fauces, namely:

**610. No. 4.** One instrument, which I have named No. 4, illustrated in figure 86, throws a vertical stream,



Figure 86. Spray Producer No. 4. This instrument is used to make local applications to the pharyngo-nasal cavity,

treating the superior portion of the arched boundary, and the walls of the pharyngo-nasal cavity.



610 (a). The following diagram illustrates the method in which I named the spray producers by numbers:



Figure 87. Numbering the Spray Producers.

611. No. 5. One, which I have called No. 5, illustrated in figure 88, sends a spray through the posterior



Figure 88, Spray Producer No. 5. This instrument is used to make local applications to the posterior nasal cavities, treating the surface under the inferior, middle and superior turbinated processes.

nasal opening, throwing its stream upward and forward at an angle of  $45^\circ$ ; this treats the under surfaces, borders, edges and sides of the turbinated processes, as well as the sides of the septum nasi.

When I gave these numerical names to the instruments, I used them in the rotation in which I have numbered them in figure 87, but more experience caused me to use No. 4 first, instead of No. 1, and then I use No. 5; after this I use No. 1. The patients are not liable to be



come so sick at the stomach when the instruments are used in this manner.

**612. No. 1.** One which I have called No. 1, illustrated in figure 89, throws a horizontal stream. It acts



Figure 89. Spray producer No. 1. This is used to treat the fauces, tonsils and, by inhalation, the lower portion of the pharynx, and slightly the larynx, vocal cords and bronchial tubes.

on the anterior portion of the soft palate, the tonsils, and by elevating and depressing its outer extremity, the posterior wall of the pharynx, from the third cervical vertebra upward to the middle of the second.

**613. No. 2.** One which I have named No. 2, illustrated in figure 90, throws a stream at an angle of  $27^{\circ}$ ;



Figure 90. Spray Producer No. 2. This instrument is used to make local applications to the anterior portions of the nasal passages.

this instrument is introduced alternately into each anterior nares, extending in the cavity about a half to three-quarters of an inch; and by the elevating and depressing the outer extremity, the medicament may be applied to every portion of the surface that can be seen through these openings, extending from the floor of the chambers to the superior turbinated processes, and the posterior wall of the pharyngo-nasal cavity.

**614.** These four instruments are employed in the treatment of every patient over 10 years of age, and on younger ones, if the pharyngo-nasal cavity is coated. As



a general rule, children can be thoroughly treated by No. 1 and No. 2.

**615. No. 3.** Patients who have accumulations adhering to the posterior wall of the pharyngo-nasal cavity, require another spray producer. I have called this one No. 3; illustrated in figure 91. This instrument throws a



Fig. 91. Spray Producer No. 3. This instrument is used to cleanse the posterior wall of the pharyngo-nasal cavity, when it is coated with a heavy, thick secretion that cannot be removed by the No. 4 spray producer.

stream at an angle or elevation of  $45^{\circ}$  upward and backward, and will cleanse and treat the surface over the first and second vertebrae.

**616. Forty-nine out of fifty patients can be successfully treated by these five spray producers alone.** In short, only those patients who have ulceration of the mucous membrane below the base of the tongue, require applications to these parts. To repeat, if there is no ulceration, the spray producer No. 1, figure 89, will make effective applications to the parts usually affected below the base of the tongue, especially if the patient makes a prolonged inhalation during the action. Patients afflicted with vocal disability—even to the extent of complete aphonia, the result of chronic inflammation, will recover by the employment of these five spray producers, aided, of course, by hygienic measures, constitutional treatment and electricity.

**617. Every case of ulceration will require the use of the spray producer, and the stream from the instrument must be directed squarely upon the surface of the ulcer itself;** consequently, if there is an ulcer that cannot receive direct applications from the five instruments



named; for instance, on surfaces below the base of the tongue, other instruments that will make direct applications must be used.

To treat successfully every portion of the surface, from the vocal cords to the base of the tongue, will require three spray producers, namely:

**618. No. 6.** One, which I have named No. 6, shown in figure 92, that throws a stream at an angle of  $45^{\circ}$



Figure 92. Spray Producer No. 6. This instrument is used to make applications to ulcerated surfaces on the posterior wall of the pharynx, and posterior wall of the epiglottis.

downward and backward. This instrument will make a direct application on any ulcer located on the posterior wall of the pharynx down to the arytenoid processes, and by rotation, the lateral walls also.

**619. No. 7.** One, which I have named No. 7, seen in figure 93, that throws a stream vertically downward,



Figure 93. Spray Producer No. 7. This instrument is used to make local applications to ulcerated surfaces located on the superior border of the epiglottis, the ary-epiglottic folds, arytenoid processes, and vocal cords.

and will treat any ulcer on the top of the epiglottis, the



ary-epiglottic folds, the posterior half of the vocal cords, and the arytenoid processes.

**620. No. 8.** One which I have named No. 8, seen in figure 94, that throws a stream downward and forward at an



**Figure 94.** Spray Producer No. 8. This instrument is used to make applications to ulcerated surfaces that cannot be reached by Nos. 6 and 7.

angle of  $45^{\circ}$ . This will treat any ulcer located on the posterior portion of the base of the tongue, the posterior surface of the epiglottis, and the anterior half of the vocal cords.

**621.** During the application of spray producer No. 7, a large quantity of medicament can be thrown down the trachea and into the bronchial tubes, if the patient makes a prolonged inspiration. That such can be done, is proved by the large quantity of spray of the medicament seen on the breath, when the patient expires.

**622.** The history of these spray producers is as follows:

In the month of June, 1866, I bought, from A. M. Leslie & Co., of this city, three of Munder's atomizers, the illustration of which was at this time placed in an advertisement in the Medical Journals by Otto & Reynder, of New York. One of these instruments threw a horizontal stream; one a stream downward, and one upward. To each instrument was attached a small bottle, into which was placed the liquid that was to be nebulized, as this process was then called.

After using the set a few days, one was accidentally broken. I could not wait for a supply from New York,



and as my patients had become very much attached to this mode of making applications, I resolved to try an experiment in making the instruments myself. After a few failures I succeeded in making an instrument that worked equally as well as the expensive one broken. In a few days later I made a very important addition to the instrument, one that proved to be a marked improvement and which ultimately led me to make a complete change in the method of treatment, namely: I blew a cup on the end of the tube that had been turned downward or inserted into the little bottle or container.

Small alterations frequently have much to do in bringing about great changes in practice. I am very certain that the cup, bowl or reservoir, which I put on the spray producer in June, 1866, had much to do in bringing about radical and a most important change in the management of the diseases of the superior portion of the respiratory tract: a change that has made the treatment of this portion of the human system **ONE OF CERTAINTY OF RELIEF IN EVERY CASE, AND ULTIMATE RECOVERY IN THE GREAT MAJORITY.**

Into this cup I placed the medicated solution to be made into spray. The small cup or reservoir I found to be much more convenient than the little bottle. I soon learned from my patients, that warm applications were far more beneficial than cold ones, and with the cup I could heat the liquid applied much easier than with the little bottle. Frequently, in heating the bottle, the whole of the charge would be exploded out of it on the application of the flame of a lamp: This did not happen with the cup.

**623.** Since that time, about the 20th of June, 1866, I made all the spray producers from glass, that I require until the last four years, since which time I have used the same instruments made of metal, nickel plated.

Besides adding the cup or bowl to the spray producer, I added seven other directions to the streams.



namely: those thrown by Nos. 2, 3, 5, 6, 8, 9' and 9". The last two spray producers will be described elsewhere (see index).

I consider the No. 5, the most efficacious instrument of the whole ten, as this one reaches the locality of the origin of every nasal catarrh.



623 (a). Fig. 95. Dr. De Vilbiss's Movable Spray Point. The principal difference between this instrument and mine, is, that the point is movable, so that one instrument will throw in all directions. With some of his instruments he has an opening in that portion of the air tube that passes the bowl, so as to force out a greater quantity of spray. I have used the instrument on quite a number of patients, and with those having capacious fauces, it does good execution. Of course the spray can be warmed in the bowl to suit the degree of inflammation of the parts. The intention of the movable point is to do away with so many spray producers, and have one instrument take the place of all eight of my spray producers. This it will hardly do, for the reason that most of the localities into which my instruments throw spray, require slightly different medication. In many instances this can be done with the De Vilbiss instrument; for instance: the pharyngo-nasal cavity requires, in some cases, a little stronger application than the posterior nares. I make this change with my No. 4 and No. 5, with the De Vilbiss apparatus, as soon as the pharyngo-nasal cavity has been treated, a small quantity of vasoline may be put into the bowl, which will weaken it to the proper strength. When the No. 1 is to be used, the *pinus canadensis* comp. can be put into the bowl and used, but every particle of the *pinus* comp. must be removed before the anterior nasal cavities can be sprayed, as these parts require a different kind of medication. The



instruments are very popular, and the manufacturer is having a rapid sale for them.

**624. Apparatus for Compressing Air.** Pure air, compressed, is the agent employed for making the spray. If one's hand has a good grip, sufficient to maintain an air pressure equal to at least 7 pounds to the square inch, he may supply the compressed air by double rubber bulbs. When the air reservoir, the second bulb, has been filled to its utmost capacity, by use of the lower bulb—the spray producer being in proper position in the patient's throat or nasal passage,—the operator grasps the reservoir with his left hand, and compresses it against his left side, with sufficient force to insure an air pressure of at least 7 pounds to the square inch.

I employ this method of procuring compressed air when treating a patient at his residence.

**625. Air Reservoir.** For office work a large reservoir containing compressed air is essential to successful practice. No physician who desires to treat patients successfully should attempt to practice without having a large quantity of compressed air always at hand. From 1867 to 1876 I compressed air by means of a very thick India rubber bag; from 1876 to 1881, I used a reservoir 18 inches in diameter and 8 feet long. Since 1881 I use one 24 inches in diameter and 8 feet long, and think that even this is too small. A battery of two of them would contain air sufficient to treat about 20 patients, without filling figure 96 illustrates its shape.



Figure 96. Air Reservoir, 24 inches in diameter and 8 feet long. *a*, the reservoir; *b*, the air pipe, passing through the floor of the operating table.



One to four times filling—as soon as the pressure is reduced to 7 pounds to the square inch—will be sufficient to treat from ten to twenty patients.

**626. Air compressed from 7 to 10 pounds to the square inch** is all that is required to make good and effective applications. Pressure greater than 10 pounds will produce a painful and irritating sensation with most patients. Some patients cannot bear even 7 pounds, while those afflicted with pruritic rhinitis (hay-fever) cannot endure more than 5 pounds, a greater pressure inducing sneezing and causing irritation.

**627. Why a pump with a leather packed piston should not be employed for compressing air.** *First:* the pump cylinder is usually made of brass, which imparts to the compressed air a very disagreeable, brassy taste and odor. *Second;* the piston of the pump is usually packed with leather, which is partially decayed animal substance, and imparts an odor of decayed tissue to the air. *Third;* to these two disagreeable odors is added that of decomposed, rancid oil, which is used to lubricate the piston and prevent excess of friction.

**628.** It is well known that compressed air absorbs a very much greater quantity of any odorous substance that may be placed in it, than does uncompressed air, and that as soon as the compression is relaxed the odor is at once set free. Upon the inhalation of air, taken from a reservoir that has been filled by a leather-packed pump, the absorbed odors are at once set free in the patient's lungs. It is exceedingly popular at the present writing, for physicians to go to great pains and expense, to free the air of any septic substance that might float in it; but when air is to be sent into a patient's lungs, not the least thought is taken with regard to its being pure, or even as pure as the air of the most illy ventilated hospital ward in the country. If a surgeon were to enter a hospital ward that received its air through one of these much vaunted pumps, he would at once declare that there



must be a dead rat or cat in the room, or that it must be in close connection with a very foul water closet, and would instantly protest against the exposure of his patients to such an infected atmosphere. But this exposure is made daily by those who use the usual pump supplied air reservoirs. While I am far from agreeing with all that is now written in our medical periodicals, concerning the painful effects of bacteria and other septic agencies that float in the air, yet no one will fail to see that rancid oil, decomposed animal tissue, and brass must be injurious to inflamed mucous membrane.

629. What will take the place of a leather packed and rancid oiled piston pump? There are two methods that will do away with this foul air. Both of them use pure water as the agent to compress the air.

(a) **The pump method.** This is easiest described by using the outlines seen in figure 97. The faucet *a* is

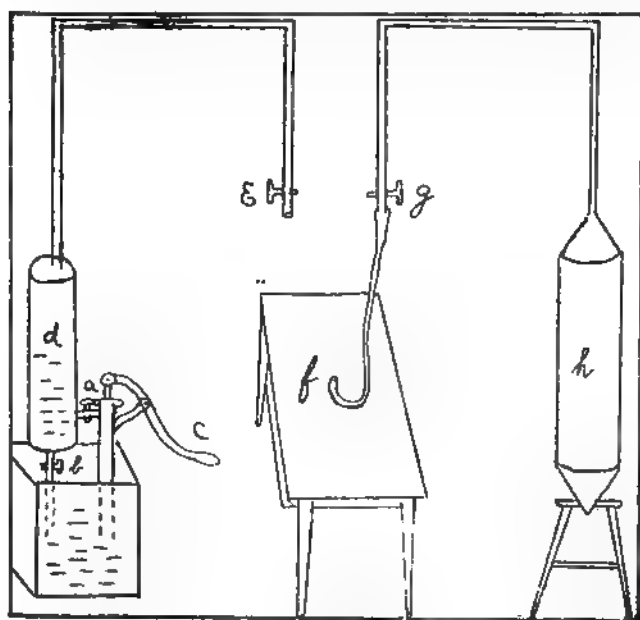


Figure 97. Outline of Water-pump Method of Procuring Com-



pressed Air. *a*, Faucet connecting the water-pump *c*, with the air compressor *d* (a common water-heater). *b*, Faucet to allow the water—that has been forced into the air compressor *d*—to escape as soon as all the air in *d* was forced through the faucet *c*, then through the soft rubber tubing *f*, and through the faucet *g* into the compressed air reservoir *h*.

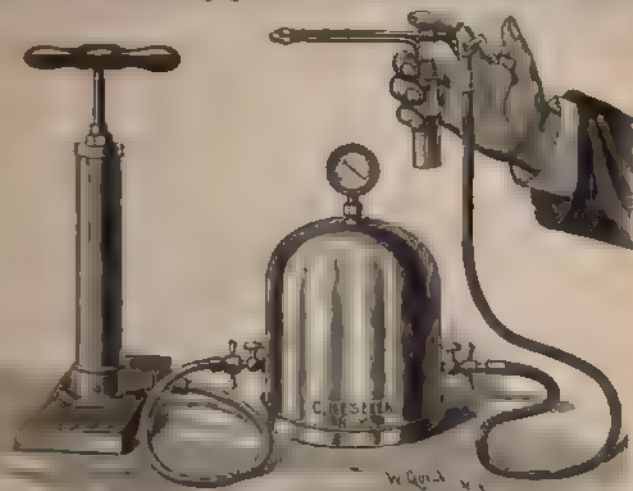
After sufficient air pressure has been secured in *h*, the soft rubber tubing *f* is connected with the spray producers.

turned open; the faucet *b* is closed; the pump *c* is now used to force water from the box or container in which faucet *b* is seen. Upon the entrance of the water into *d* the compressed air will begin to pass out at *c*, if this faucet is open, the the soft rubber tubing *f* is slipped on the down tubing from *g*, then the air will be forced through the faucet at *g*—if it is open—into the air reservoir *h*. This air reservoir is represented as standing on its end, but it is the same kind of a reservoir as represented in figure 96, which is shown as swung in a horizontal position. As soon as the air compressor *d* is filled, and all the air that was in it is forced into *h*, the pumping should be discontinued, and the faucet at *g* should be turned so as to retain the air in *h*; then the faucet at *b* should be opened, the air will then rush in at *c* and the water out at *b*, until all of the latter has run into the box or water container *b*. If the air reservoir *h* is 24 inches in diameter and 8 feet long, and the water compressor *d* is thirty gallons in capacity, each time *d* is filled with water, three pounds to the square inch of air pressure will be forced into the air reservoir *h*.

(b) **The hydrant method.** The method I have used for many years (since 1876) is to connect a common water heater (*d* figure 97) —such as is seen in every house where warm water is distributed to the rooms with the hydrant. This compresses the air that is in the heater, or, as I call it, the air compressor. The degree of compression will equal the pressure of water in the hydrant. The air compressor —*d* figure 97—is put in connection to the air reservoir *h* mentioned above, and in this way pure



compressed air is stored, ready for use. It is seen that the hydrant takes the place of the pump *c*, shown in figure 97; the drain pipe *b* is connected with the sewer.



630. Figure 98. This illustration shows a common air pump, a small air reservoir, and a Saas cut-off or spray controller in the hand of the physician. The fault regarding the air reservoir is that it is far too small, it will not hold air enough to treat one patient, unless the air has a pressure of at least 20 lbs, to the square inch. This pressure is sure to injure the mucous membrane, unless the greatest care is taken to control the force of the spray by the air cut-off.

631. **Spray Controller.** For many years I compressed the rubber tube—connected with the compressed air reservoir—with my thumb and finger, thus controlling the strength and quantity of the spray, making it as weak or as strong as the case required. While this method produced results that were all that could be desired, and were absolutely essential to the successful treatment of almost every case. Yet it occupied one of my hands that ought to be employed in holding the patient's head in position or in holding the lip of a female patient or the mustache of a male patient out of the way.

631 (cont.) To set this hand free and yet control the amount of air as measurably as I did with my hand, I constructed in 1881, an instrument that I have



named the spray controller. It is illustrated in figure 99.

**632.** The degree of pressure the spring under the lever of the instrument exerts on the rubber tube, connected with the air reservoir, is controlled by a nut (*a*). The nut should be made to exert no more pressure on



Figure 99. The Spray Controller. *a*, act-screw, to control the pressure on the rubber tube connected with the compressed air reservoir. The illustration shows the manner of holding the instrument. The Spray Controller is thus made the handle of the Spray Producer.

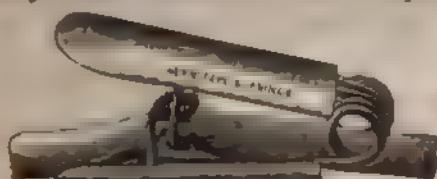
the rubber tubing than is required to completely control the air. It is seen that if the nut *a* is turned down no tighter than is necessary to prevent the escape of air, a very slight compression on the lever with the spring under it, will relieve the pressure on the rubber tube, and allow a small quantity of air to escape, which can make only a weak spray. As the hand of the operator is not required to make great exertion to compress the spring, he can handle his spray producer with delicacy and accuracy, so that he is certain that he does not touch any part of the throat, except the parts intended. An instrument held in the hand with but little muscular exertion, leaves the sense of touch unobtunded; whereas one that requires strong muscular exertion of the hand and fingers, will so obtund the sense of touch that he might, without knowing it touch the throat, and so roughly as to cause the patient's throat to contract, and thus prevent a proper application of the spray producer.

**633.** Excessive exertion should be avoided. It is not at all a rare occurrence for patients, especially



medical men, to state that some physicians, while treating them, always touched their throats in a manner that made them retch severely. On stating that the instrument touched them, the physician making the application would say in surprise: "Oh no, I don't think I touched your throat, I would have felt it if I had done so," proving that he held his instrument so firmly in his hand, that the sense of touch was obtunded to such a degree, that he was not conscious of touching his patient.

**633. (a).** The SaaS spray controller or cut-off, shown in figure 98 is made to be acted upon by the thumb, which is naturally not the best member of the hand to do such work. The thumb is seldom required to do any delicate work. This is oftenest left to the fingers. But this kind of cut off is best suited for the kind of a spray producer represented in figure 98. I would not use this kind of a spray instrument, consequently would not use this kind of a spray controller.



**633. (b).** Figure 100. Dr. A. DeVelbuis' Cut-off. This is a very simple and effective instrument. If the spring is too strong, a rubber string may be wrapped around the near end of the instrument; this can be made to so control the strength of the spring, that but very slight pressure is required to allow air to escape into the spray producer.

**634.** In first applications to new patients, the stream of spray must be cautiously applied, commencing with a weak stream and gradually increasing it as the patient becomes accustomed to the sensation it produces.

Quite a number of physicians fail completely, to treat patients, whose throats are excessively sensitive, merely because they do not use the spray at the first treatments with sufficient caution, and the continued attempts to treat such patients in this harsh manner, as it must be called, will eventually educate their throats to refuse any kind of treatment at their hands.

**635. EARS.** Cleansing the Ears. When otor-



rhoral discharge is so excessive, that the mucous membrane cannot absorb the whole of it, it should be removed by means that will not cause the least irritation. In the middle ear, as in the nasal chambers, muco-purulent secretion, if allowed to remain a few hours, acquires an acrid property which will not only maintain the inflammation, but increase it, and will induce the condition most favorable to the growth of aural polypi.

**635 (a).** Only a few years ago, syringing the ears of every otorrhoeal patient was advised by every physician in the world. At the present day, the man who recommends water is placed amongst those who have not advanced.



Figure 101. Kramer's Ear Syringe. This is a very familiar instrument, but a very defective one.

The reason for this sudden and extreme change is found in the fact that they all relied on an instrument that never did, nor never can accomplish what most of them now, even, think it can do, namely: wash the middle ear completely clean.

**636. Ear Injector.** I consider that Lucal's ear injector, illustrated in figure 102, is the best instrument for

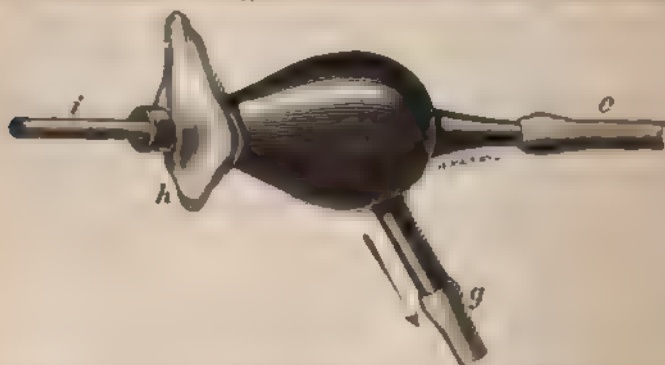


Figure 102. The Modified Lucal Ear Injector (full size). c, The



soft rubber supply tube. *i*, the small soft rubber tube that passes into the meatus to within one quarter of an inch of the membrana tympani. The cleansing fluid passes, from the tube *c* through the small tube *i*. After the water has spent its force on the drumhead and middle ear, it flows back outside of the small tube, to again enter the injector and pass out by the tube *g*, which conducts the liquid into a receptacle by the patient's side; *A*, a gutta serena ring that has been moulded, while warm, to fit the parts surrounding the outlet of the auditory canal. This ring, with gentle pressure, prevents the escape of the water, except through the tube *g*.

cleansing the middle ear. While using it, the head of the patient can be placed in any position desired, which is an important matter as will be seen further on. The extremity that is put into the ear, fits so closely into the auditory canal, that the cleansing liquid does not escape except through the instrument, thus preventing the liquid from running down the patient's neck, or on his clothing.

**637.** This instrument may be made of hard rubber or soft metal, and is about three inches long. It consists of two tubes, one within the other; the inner tube conducts the cleansing liquid into the ear, the outer tube—the caliber of which is larger than the outside diameter of the inner tube—conducts the liquid from the ear. To the outer extremity of the instrument, which is the inner tube, is attached a soft rubber tube (*e*), through which liquid passes to cleanse the ear. To the outer tube is attached a piece of soft rubber tubing (*g*), about three feet long, through which the liquid, after it has washed the ear, is conveyed into a receptacle at the patient's side.

**638.** To this most excellent ear injector of Dr. Lucæ, I have added two slight modifications: To the extremity of the inner tube that goes into the ear, I have attached a small, smooth, soft rubber tube (*i*, figure 102), of the small caliber as the inner tube, which projects three quarters of an inch beyond the injector; its object being to convey the cleansing liquid so near the drum-head,



that the force of the stream will be but slightly counteracted by the returning liquid from the middle ear. The stream is thus made effective without employing a great degree of force. As this tube is very flexible, the patient is in no danger of being injured by any untoward movement of the head or of the instrument.

**639.** Not infrequently a child's ear is so excoriated by the outflowing otorrhoeal secretions, that the meatus is too painful for him to press the injector into the ear with sufficient force, to prevent the escape of the cleansing liquid down his neck. To obviate great pressure, I have surrounded the outer extremity of the injector with a wide ring of gutta-percha (*h*). This ring is moulded to fit the parts immediately surrounding the auditory opening, by first softening the gutta-percha in hot water; and while in a softened condition, it may be made to fit around the point of the injector and then gently pressed into the ear, care being taken not to burn the child's ear by applying the gutta-percha too hot. As soon as the gutta-percha is cold, it becomes hardened.

**639 (a).** While using this ring, the injector will need but slight pressure to prevent the outflow of the cleansing liquid, except as it passes through the instrument. If both ears require cleansing, it will be necessary to have two injectors for this patient. Of course these rings will not fit the ears of other patients; therefore, they require to be freshly molded for every patient.

**640. Manner of using the ear injector.** The slender, soft rubber tube *i*, figure 102, that projects into the ear, will follow the curved course of the auditory canal, yet experience has shown that the stream from the injector almost invariably strikes the posterior wall. In order, therefore, that the stream may pass through the perforation in the drum-head and enter the middle ear, without wasting its force on the sides of the auditory



canal, the patient should straighten this passage as much as possible. To do this, he should throw his arm, *i. e.* the one opposite the ear to be washed, over the top of his head, and flex it toward the the ear as illustrated in figure 106, so as to grasp the auricle with the thumb and finger and pull it upward and backward, holding the injector in his ear with the other hand.

840 (a). The cleansing liquid may be taken from an ordinary pitcher by means of a syphon, or from the same container as that employed for the catheter nasal bouche, figure 103. If the latter is used, the catheter

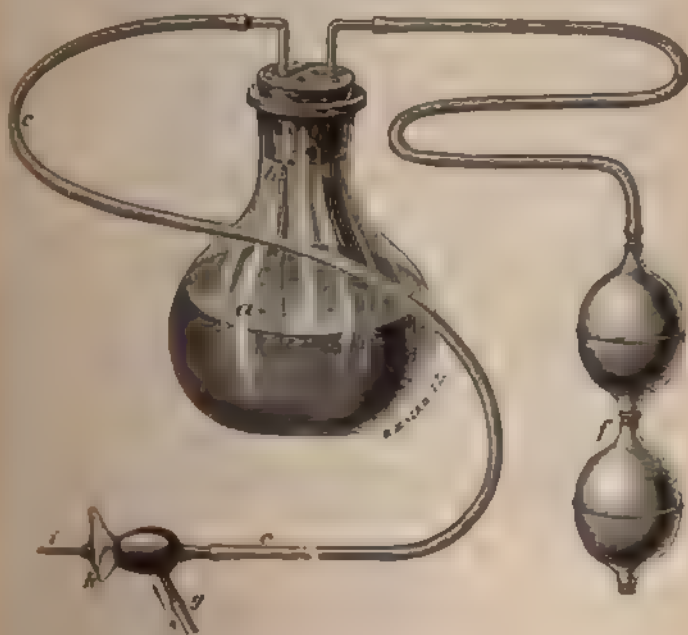


Figure 103. Reservoir for forcing the cleansing fluid through the ear injector. *a*; container. *b*; Perforation in the metal tube, that should be closed by slipping a piece of soft rubber tubing over it. The water passes through the rubber tube *c*, thence out of the small soft rubber tube *i*. *g*; Soft rubber tube that conducts the water away from



the ear. *A*; Ring to prevent the water from flowing down the neck of the patient. *f*; the rubber bulba for forcing air into the container, *a*.

should be removed from the tube *c*, shown in figure 65, and the ear injector attached in its place, as shown in figure 103, *c*. The aperture *b*, on the long metal tube under the rubber stopper of the container, is closed, by slipping over it a piece of rubber tubing. This will prevent the entrance of air into the stream as it leaves the container, which, while essential in using the catheter nasal douche, would be quite objectionable in the ear injector. The cleansing liquid is forced from the container (*a*) and injector, by forcing air into the container by compressing the lower air bulb *f*; the force of the stream being regulated by the amount of air forced into the container.

**640.** (*b*). Should dizziness or other disagreeable symptoms be produced, this indicates that too much air has been forced into the container. It is not necessary to employ a strong current to cleanse the middle ear properly.

**641.** If an ordinary pitcher is employed as a container for the cleansing liquid, a rubber hose about five feet long will be required. The force of the stream may be regulated by the height of the pitcher above the patient's head.

**642. Method of cleansing the ear.** Merely washing out the auditory canal, as is done by the usual ear syringe, is but a small and unimportant portion of cleansing an ear. If the muco-purulent secretion is not removed from the whole of the middle air, the attempt to wash the ear had better not be made; as the water will do far more harm than good.

The upper half of the tympanic cavity is situated above the superior wall of the auditory canal, as can be seen by examination of the vertical section of the external



auditory meatus, membrana tympani and tympanic cavity, illustrated in figure 104. Consequently, filling the audi-

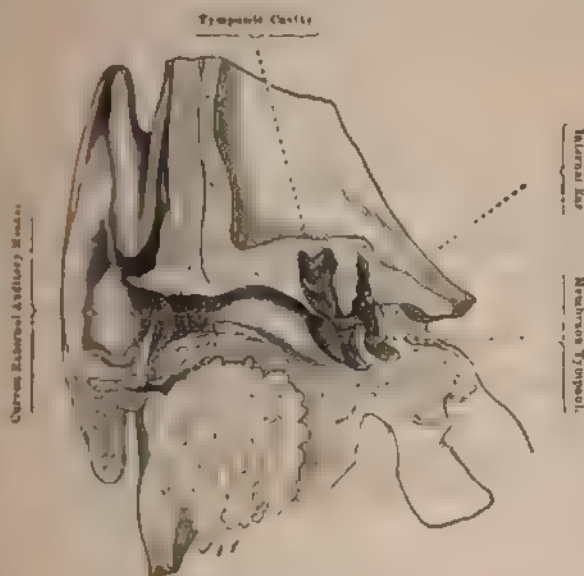


Figure 104. Section of the External Auditory Meatus; the Membrana Tympani; the Tympanic Cavity, etc. After Henle.

It is seen from this illustration, that a perforation in the middle of the membrana tympani will allow only the *lower third* (even less than that in many cases) of the tympanic cavity to be cleansed, if the head of the patient remains in the position that is usually occupied when the ear is being syringed, leaving *all* above the upper margin of the perforation *untouched*, consequently *unwashed*, as the water cannot be made to condense the air nor displace it, while the head remains in the erect position.

Any canal with a cleansing liquid fills only that portion of the tympanic cavity that is *BELOW* the upper margin of the perforation in the membrana tympani (provided the patient's remains in an erect position, as it always is when the ear is syringed) which is less than one-third of the cavity: all above this is occupied by gas or air, but in most cases by muco-purulent secretion, which



cannot be removed, because the air or the secretion cannot be displaced while the head is in the erect position. If these are not displaced by the cleansing liquid, it is very evident that the entire tympanic cavity will not be cleansed.

**643.** These are the reasons why the common ear syringe so frequently fails to cleanse the ear. The cry raised by many careless ear syringers, is now against "water;" but it should be against un-scientific ear syringing, and against **over use of the syringe**. That ears are very frequently injured by water is true, as sometimes a quart is employed daily without cleansing the ear, whereas, one or two ounces if properly used, would have cleansed the ear completely. A teaspoonful of water will cleanse better than a quart used in the usual way. Water is essential to cleansing some ears, and should be made to do a great deal more good than harm.

**643 (a).** Aurists are acquainted with the fact that frequently there is much greater evidences of disease in the upper part or vault of the tympanic cavity than there is on the floor. Numerous theories have been suggested to account for this peculiarity, none of which, in my opinion, will stand close investigation.

An examination into the pathology and physiology of the middle ear, will, I think, make the matter plain, and will answer the following question, also: "How is it, that while there is a perforation in the *membrana tympani*, the muco-purulent secretion collects in the upper part of the tympanic cavity, fully one-quarter to one-half inch above the opening in the drum membrane? Why does it not flow out through this opening, when there is nothing to stop the outflow, not only this, but it has the influence of gravitation to assist its escape?"

As stated, I propose to answer the above inquiry and furnish a good theory for the disease of the vault of the tympanic cavity.

In a patient suffering with *otorrhæa*, the tympanic cavity is a closed cavity as soon as the secretions accumulate in sufficient quantity to cover the perforation in the drum membrane and the opening from the Eustachian tube. As stated in topic **214**, the mucous membrane of the middle ear and mastoid cells absorbs air, consequently, instead of the secretion flowing out of the perforation, through the influence of gravitation, the absorption of air by the mucous membrane lining the upper portion of the cavity and the whole of the mastoid cells,



release it—by outside air pressure—to occupy the place of the absorbed air and thus accumulate in the upper part of the middle ear, until it is entirely filled. Occasionally the formation of pus is not so frequently rapid to take the place of the absorbed air, then the patient will notice that once in a while a sound like the bursting of a bubble will take place, and that too without any outflow of secretion from the ear. This fact goes to show that I am right.

If the middle ear is left in this full condition for several months or years, the formation of irritating gasses will take place, and the more watery portion of the secretion—which has much less chloride of sodium in it than is normal—will be forced to the upper part of the secretion, by the sinking of its heavier constituents, where it will be absorbed by the mucous membrane—because of absence of chloride of sodium—which, with the presence of the irritating gasses, will have the effect of inducing inflammation, as well as growths of various kinds.

With this view of the subject, it is evident that Dr. Blake's ear syringe, figure 103, will prove very effective, if handled with great



Figure 103. Blake's Middle Ear Syringe. This is an excellent instrument, but it requires to be handled with extreme dexterity.

care. I have employed it in many cases, with excellent results, but I sometimes occasioned pain by its application, either by an unlucky cure or by using too great a force to the stream of warm salt water.

**644. Head Movements of the Patient.** To cleanse the middle ear completely, the secretion and gas or air in it should be displaced by the cleansing liquid. To allow the escape of these, I cause the patient to hold his head in such a position that the perforation in the



membrana tympani is placed uppermost, then of course they will escape readily, upon physical principles; as illustrated in figure 106. *1*, represents the auditory meatus,



Figure 106. Diagram of the middle ear; *1*, the auditory canal turned vertically; *4*, the perforation in the membrana tympani; *3*, the upper half of the middle ear than cannot be washed by the common ear syringe.

placed vertically to allow the gas in the middle ear *3*, *4*, to pass through the perforation of the membrana tympani at *5*, and escape through the auditory meatus, *a*. To accomplish this, I have the patient describe a circle by a head movement in the following manner:

Commencing with the head in an erect position, as shown in figure 107, the stream from the injector is allowed to flow into the ear for a few seconds, that the pa-



Figure 107. Showing the position taken in first introducing the ear injector. The patient holds the instrument into the ear with one hand, and draws the ear that is to be cleansed upward and backward with the other hand. *c*; Supply tube seen in figure 108; *g*, tube to conduct the water away from the ear, seen in the same figure.

tient may become accustomed to the sensation it produces; his head should then be inclined forward—the stream flowing continuously—until the forehead is in a horizontal



position, as shown in figure 108; next, the head should be



Figure 108. The head inclined forward while the patient still holds on to his ear and the injector. *c*, Supply tube. *g*, tube to conduct the water away from the injector.

rotated toward the left,—provided the right ear is the one washed—until the side of the head is horizontal, as



Figure 109. The head is held to one side, so that the cleansing fluid falls perpendicularly into the ear treated. As seen, the illustration is not quite right. *c*, Supply tube; *g*, tube to conduct the water away from the injector. The force of the stream should be lessened while the head is in this position, to prevent dizziness.

shown in figure 109; then the rolling motion is continued backward—toward the right—until the forehead is again in the horizontal position, the face looking upward,



Figure 110. The head thrown back so that the forehead is hori-



zontal. *c*, Supply tube; *g*, tube to conduct water away from the injector.

as shown in figure 110; the rolling motion is still continued toward the right, until the stream is thrown vertically upward into the ear, as shown in figure 111; the rolling



Figure 111. The head thrown over to one side, so that the stream enters the ear vertically *c*, Supply tube; *g*, tube to conduct the water away from the injector.

motion is still continued until the forehead is again in a horizontal position, with the face looking downward, as represented in figure 107, which completes one rotation of the head.

These portions of the head are assumed, one after another, so as to make one continuous movement.

Usually from one to three rotations of the head, occupying from one-quarter to one minute, are sufficient to cleanse the tympanic cavity.

**645. The cleansing liquid.** The liquid for cleansing the ear is made by dissolving a teaspoonful of common table-salt in a pint of warm water (90° F.). Water, either without salt, or with too much in it, produces an irritating effect, and when the temperature is too low, a painful sensation will be felt in the ear.

**646. Precautionary.** It should be borne in mind, that washing the ear can be overdone, and will be overdone if the physician is not very careful. The precautions



given concerning the use of water in cleansing the nasal passages, are equally applicable in cleansing the ears.

**646 (a).** The less the ear is washed, so that it is kept clean, the better for the patient. Usually half a teacupful of liquid is all that is required to cleanse an ear that is completely full of muco-pus, unless the secretion is almost semi-solid.

**647. After Treatment.** After the ear is washed, the auditory canal should be thoroughly dried with absorbent cotton. Then about three grains of boracic acid should be thrown or blown into the ear by the ear powder blower, shown in figure 111; then the canal should be

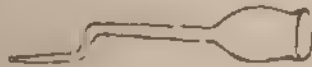


Figure 112. Ear Powder Insufflator. The bulbous extremity is covered with a piece of sheet India rubber; pressing on this with the thumb, while the small extremity is in the ear, blows the powder in the ear.

dusted with a little vasaline, applied with a small camel's hair brush.

**648.** If the weather is the least chilly or even cool, a small piece of borated cotton, warmed, should be placed in the ear, care being taken that only the lower one-fourth of the canal is filled, the upper fourth should be left open in order to allow an interchange of air between the auditory passage and the external atmosphere. If ventilation in the auditory passage is not maintained, the integument of the passage will soon be softened by undue perspiration, and the middle ear will be over-heated, which will be certain to aggravate the middle ear disease.

**649. Vasaline as a Cleansing Liquid.** If the aurial secretions are not very profuse or offensive, I employ warm vasaline instead of warm salt water, which I force



into the injector by a small syringe the patient making the usual rotations—using enough vasaline to cleanse the parts.

In many cases, after the use of the warm salt water, I inject warm vasaline, then wipe the ear dry and apply the boracic acid as before stated.

**649 (a).** The effect of the vaseline is always agreeable, although it sometimes decreases the hearing, but it is for a few minutes only. It does this by its weight, on the ossicula auditus; but as soon as it flows away from the neighborhood of the stapes, the hearing returns to the usual degree of acuteness, if it be not improved, as frequently happens.

**650. Spray producers for the mouth of the Eustachian tubes.** Sometimes the Eustachian tubes are so affected, that they require applications from spray producers; particularly in patulency of this canal. As the mouths of the tubes are situated where any ordinary spray producers, Nos. 3, 4 or 5, cannot make direct application; and as inflations of the middle ear do not always relieve the patient, I constructed instruments in 1870, that throws a stream directly into the mouth of the tube.

Two instruments are required: one for each Eustachian tube. Each instrument is so bent that the spray point is turned upward about three quarters of an inch, one throwing a stream into the right tube, and the other into the left tube, and at such elevation as to be in a line with the axis of these passages.

**651. No. 9 right.** The spray producer for the right tube, illustrated in figure 113. I have called No. 9 right. It



Figure 113. Eustachian Spray Producers; for making applications to the mouth of each Eustachian tube.



General 9 shows the Eustachian spray producers in profile; No. 9 right is marked 9', it throws a stream into the mouth of the right Eustachian tube; No. 9 left is marked 9'', and throws a stream into the mouth of the left Eustachian tube.

throws a stream upward, backward and outward toward the right, and in a line with the axis of the right Eustachian tube.

**652. No. 9 left.** The spray producers for the left tube, I have called No. 9 left. It throws a stream upward, backward and outward toward the left and in line with the axis of the left Eustachian tube.

**653. The manner of using** either of these instruments is as follows: The patient keeps his tongue down with the tongue depressor, and is told to breathe freely and easily, as well as to endeavor to tolerate the presence of the instrument behind the soft palate. The spray producer is passed up behind the soft palate, and this organ is gently drawn forward until the point of the spray producer is directly in front of the tube to be sprayed; the air is then allowed to pass slowly through the instrument. Soon, the patient will experience sensations that will indicate that the middle ear is inflated.

Most adult patients—and it is fortunate that these are the only kind requiring this treatment—soon learn to tolerate the presence of the instrument behind the soft palate, as well as to allow its being drawn sufficiently far forward to permit the stream to go directly into the mouth of the Eustachian tubes. In this way the spray is sent directly into the canal, and, if sufficient pressure of air is employed, the middle ear will be inflated.

**653 (a).** I use these instruments almost exclusively for patency of the Eustachian tube, not an unfrequent complaint; but it is one, at present, not mentioned in the books on the ear. The application of the spray throws air directly into the pharyngo-nasal cavity, and inflation of the middle ear, are sometimes unavailing to relieve such cases.



**654. Warm Air Spray Producer.** The warm air spray producer, illustrated in figure 114, may be used to treat the anterior nares, but is employed chiefly to inflate the middle ears of children. It consists of a thick glass



Figure 114. Warm Air Spray Producer for Treating the Anterior Nasal Cavities and Inflating the Eustachian Tubes.

*A*, Boiler; *B*, Soft rubber tubing connected with the boiler and the spray producer. *C*, Faucet for controlling the amount of air that is to enter the boiler. *D*, Large tube that contains the medicine to be made into spray. *E*, The spray.

tube *D*, four inches long and three-fourths of an inch in diameter. This is pointed at one extremity, so as to present a half inch opening; the other, is closed with a rubber cork having two perforations, one for holding the stem of a spray producer that is placed within the larger tube *D* or container, and the other for the reception of the pipe from the heater *A*. To the spray producer and the heat-



er is attached a pair of rubber air bulbs, or other means for compressing air, by a double tube *B* and *C*. On the arm which is connected with the heater, is a faucet *C*. A small lamp is placed under the heater to warm the air that is forced into the container *D* by the compressed air. The outer end of the container *D* is slightly elevated, for the more convenient insertion into either nostril.

**855.** The mode of application is as follows: A lamp is placed under the heater *A*, so as to warm the air to about 110° F. The medicament to be converted into spray is placed in the container *D*, over the end of which is slipped a common rubber nipple shield, a quarter of an inch of the closed extremity being cut off to prevent the spray from escaping, except by return from the other nostril, and to protect the patient from the heat of the heater. After the introduction of the instrument into one nostril, air is forced by the air bulbs into both the spray reducer and the heater, the effect of which is to produce a warm spray of the desired temperature. The intensity of the heat is governed by the amount of air allowed to pass into the heater through the faucet *C*.

**856.** Many of my little patients prefer this instrument for the treatment of the nostrils, as well as for inflation of the middle ears. They need only to close the nostril not treated, when the warm air and spray will inflate both middle ears, sometimes without the act of deglutition: more frequently they will involuntarily perform the act of swallowing, when the warmed air, loaded with spray of vaseline is forced into the Eustachian tubes in greater quantities.

My experience greatly favors the injection of warmed air rather than cold air into the middle ears.

**857.** This instrument has also proved beneficial in the treatment of myingitis, the result of acute catarrh of the middle ear and in feruncle. The air should not be blown so forcibly for the treatment of these affections, as for nasal and middle ear troubles.



## CHAPTER IV.

### THE INSTRUMENTS FOR MAKING OPERATIONS, AND THE METHODS OF USING THEM.

**658. Nasal Polypus Forceps.** A forceps that will not allow a gelatinuous tumor to slip from its grasp, is a very useful instrument. The one illustrated in figure 114, I have used since 1870, and find it to be well suited to remove gelatinuous growths.



Figure 115. Polypus Forceps. *a*, a lever that pushes a ring, *b* over the arms of the forceps and closes them on the growth.

**658 (a).** The manner in which I use it is as follows: The nostril is maintained as wide open as possible, by the patient using the nasal speculum, the cavity is then lighted up. Locate the pedicle of the tumor by a blunt probe, insert the forceps as near the pedicle as possible, close the arms by aid of the lever *a*. The forceps are then rotated toward the left, if the tumor is on the left side. As soon as the forceps begins to give evidence that the part of the tumor between the forceps and the attachment has been wrapped tightly around the forceps, the rotation is discontinued and the forceps is cautiously forced inward one quarter of an inch, and then forcibly drawn outward one half an inch, and back a quarter of an inch to the place from which it started; it is then



rotated again toward the left, until all the slack is wound tightly around the forceps. The instrument is again forced in one-quarter of an inch, withdrawn forcibly one-half of an inch, and passed back one-quarter of an inch, and again rotated until all the slack of the tumor is wound around the forceps, after which the instrument is again forced in and out as before. This rotation and forcible inward and outward movement of the instrument will ultimately loosen the tumor, when it may be withdrawn from the nostril.

I have taken tumors from the nasal passages that were fully one inch in the largest diameter and three inches long.

This manner of removing gelatinous tumors, I find to be very successful; that is, they very seldom return.

**659. The long steel wire.** Very frequently, during my practice, I have met tumors that could not be reached by the nasal forceps or any kind of a grasping instrument. For such, a long wire is the best means to effect removal. The first tumor of this kind I removed, was from the left nostril of Dr. R. M. Jordan of this city, in Oct 1870. The method adopted then, is the one I still use, and is as follows:

**660.** I pass a white thread, about fifteen inches long, through a No. 5 male catheter, leaving an end two inches in length hanging out of the eyelet. The catheter was then anointed with olive oil, and passed along the floor of the nasal passage, keeping its point next to the septum nasi. As soon as the extremity of the catheter was in sight behind and below the soft palate, the thread was seized with a pair of forceps and drawn out of his mouth. The doctor was requested to hold this end in his left hand. The catheter was then withdrawn from the nasal passage, of course leaving the thread in the passage, but drawn out of the catheter. The end of the thread that hung out of the nostril was also given to the doctor to hold in his right hand, who held it sufficiently tight



to prevent it being drawn into the throat during the frequent acts of swallowing, which this manipulation occasions. The catheter was again threaded, but with black thread, of the same length, and again passed into the same nasal passage, but, instead of the extremity being held against the septum, it was held as far from it as possible. As soon as the extremity of the catheter was again visible below the soft palate, the black thread was seized with the forceps, as before, and drawn out through the mouth and given in the doctor's hand. Then the catheter was withdrawn, which drew the thread through it; but not from the nostril. This nasal extremity was also given into the doctor's left hand.

I then attached a stiff wire, about the size of a coarse thread, to the extremities of the threads that hung out of the mouth. To attach it, a short hook was made on each extremity of the wire, not more than a sixteenth of an inch in length. Into each hook, a loop, made on the end of each thread, was placed. As soon as this was done, traction on the ends of the threads hanging out of the nostrils — both threads being kept separate, the white towards the right, and the black towards the left, — drew both extremities of the wire up and behind the soft palate at the same time, and as the threads introduced were as far as possible placed and maintained on each side of the nasal passage, and the loop was one and one half inches across, the wire must catch any growth that hung vertically across the posterior-nasal opening especially as the wire had the tendency to assume the straight position. But lest the wire had not taken this position, I made an examination with the pharyngeal mirror, and found that the loop was around the tumor. Had it not been in this position, I could have placed it there with a bent crutch probe, as I have done several times since.

As soon as the wire loop gave indications of its being engaged around the tumor, which was known by its being held within the cavity, both extremities of the wire were passed through a double canula. As the two ends



of the wire were drawn through the canula, the canula was passed into the nasal passage up to the tumor, which was then completely surrounded by the wire. A continuation of the draught on the wire, caused it to act as an *ecraseur*.

From the time that the double canula was placed up against the tumor, it took about thirty-five minutes to complete the separation. There was but little hemorrhage, and the operation was far more disagreeable than painful.

The tumor has not returned, although removed nearly sixteen years ago. He has been treated for his catarrhal inflammation, which was the producing cause of the tumor, for two or three years as occasion required, which is certain to prevent the return of all such growths.

**661.** At the present time I spray the nasal cavity with a 5 per cent solution of cocaine, which completely obviates the pain or distress occasioned by the passage of the catheter and wire through the nasal cavity, and greatly shortens the length of time taken for the operation.

**662. Long platinum wire.** The same method is employed in passing a platinum wire around a tumor that proves too dense to be removed by the steel wire. Instead of the platinum wire being passed into the double steel canula, it is passed through a double insulated canula, so that will not allow electricity to pass except through the rather around the wire loop; the electricity being employed to do the separating, instead of a crushing force, as was used in the *ecraseur* above described.

As the mechanical force employed in the electrical *ecraseur* is not great, an instrument that must be made of black rubber, will serve the purpose of keeping the platinum wire in loop form, and is all that is required. Such an instrument I had constructed.

After the wire is placed around the tumor, and the electricity is applied, one extremity of the wire is drawn at a time, usually a quarter of an inch is sufficient, then



the other extremity is drawn out the same distance. The alternate drawing is continued until the tumor is cut off.

**663. Nasal Ecraseur or Snare.** Dr. W. C. Jarvis of New York, presented to the American Laryngological Association, in 1880, a steel wire ecrasure, illustrated in figure 116, by which he removes hypertrophied tissues



Figure 116. Jarvis' Nasal Snare.

from the turbinated processes, in an almost painless manner. My first attempts in using this instrument were not successful. I did not take time enough in cutting off the growth. I have since learned the proper manner of using it, and consider it the most useful instrument that has been invented in New York, during the last twenty years.

It consists of a tube about seven inches long, the proximal extremity for two and a half inches, has a thread cut on it. On this is placed a milled nut, about three quarters of an inch in diameter. Over this threaded portion is slipped another tube, which is prevented from turning, when the nut is tightening the wire around the tumor, by the threaded portion being flattened, and the outer tube being shaped to fit this flattened surface. On the outer end of this tube are two stout pins, around which the extremities of the wire ecraseur are wrapped. No. 5 piano wire possesses the strength and elasticity, and is the kind used. The two extremities of the wire are passed through the instrument, leaving a loop of about one and a quarter inches long.



**664.** Placing the wire loop around the growth is difficult to accomplish, and frequently requires great patience and dexterity. The loop slowly is passed in the nostril, and made to surround the growth. If this is large enough to protrude a quarter of an inch, it may be easily surrounded by the wire. As soon as it is ascertained, by slight traction, that the wire is engaged, the nutted nut is slowly turned, time being given for the wire to sink into the hypertrophied tissue, as it always does; and in about half a minute the nut should be again turned partly around. As soon as it is ascertained that the loop has a good hold on the growth, the patient should be directed to take hold of the instrument with his left hand. He should turn the nut with the right hand so slowly that he has but little pain. An important location is to keep the end of the instrument, from which the loop intrudes, held close to the outer wall of the nostril. If this is not done, the loop will slip off over the anterior extremity of the hypertrophied growth. It should be borne in mind that the loop seldom slips off over the posterior extremity of the growth.

It generally takes from about half to three-quarters of an hour to take off a growth one-quarter of an inch wide and three quarters of an inch long. The only sure rule is not to cause much pain.

When the instrument has cut itself out, if the patient does not blow his nose—which he should not do—there will be no loss of blood, or at least but very little. This leaves a small scar, one about the size of a large pin's head.

**665. Modified Jarvis Ecraseur.** Not unfrequently the hypertrophied growth on the turbinated processes are rounded bodies only, such as the wire loop will not take hold of. In this case I have taken the needle of a hypodermic syringe, and transixed the growth, and then placed the loop over it. This gives the wire a hold on the tumor. Since then I have had long needles made, taking my pattern from some I saw in the hands of Dr. Jarvis.



This led to the idea of having the needles so attached to the ceraseur, that they could be used after the loop wire was placed around the growth. Figure 117 illustrates the instrument I have made for this purpose.

In some instances I find that this snare, as modified by me, has a little advantage over the original Jarvis snare, but in very many cases I use the Jarvis snare, with his needles in place of this instrument. The modification consists in the following:



Figure 117. Modified Jarvis Snare.

1st. The excising nut is placed at the outer extremity of the instrument, so as not to intercept the surgeon's view of the parts to be operated upon.

2nd. A ring is employed for holding the instrument. I prefer the patient to hold the instrument while the excision is being performed, as he can do so far more comfortably to himself than can be done by any one else. I also direct him to turn the excising nut. As the excision should be performed slowly - to prevent hemorrhage and the foundation of extensive cicatricial surface - his sensations are the best guide as to the speed of the cutting process. As the pain lessens, he is directed to turn the nut; and the placing of this nut on the outer extremity of the instrument, I have found to be a little more convenient also for the patient.

3rd. The wire holder is a rod, not a tube. There is not the least advantage in this, but this is required if the excising nut is placed on the outer extremity of the instrument. This rod is long enough to extend beyond the inner extremity or operating end of the instrument, and the portion thus protruding has a small opening in which to fasten the excising wire. After the wire is firmly attached, the extremity of the rod is then drawn into the



barrel of the instrument leaving the loop of wire extending one inch, more or less, from the instrument, and ready to be applied to the hypertrophied tissue to be removed.

4th. Two needles are permanently fixed on a perforated slide, which moves easily on the instrument and is seen next to the ring. To make the needles take the right direction, their points pass through a guide that is also slipped on the instrument, but at its outer extremity. The guide fits so tightly on the instrument that it does not leave its place while the needles are being pushed through it by the finger of the operator applied to a perforated slide, which, as has been said, moves easily on the barrel of the instrument. This mechanism insures the needles taking the desired direction.

5th. The instrument is bent on itself, at the location of the perforated slide. This is done to make a sufficient angle to prevent the nut from interfering with the operator's view of the parts inspected. The illustration given above, does not indicate this angle very clearly, as the instrument is made to lie on its side, to show the ring.

**866. The Galvano-Cautery.** Every one has a favorite manner of applying the galvano-cautery. Some allow the platinum to become almost white-hot before passing it into the nasal cavity. I did this on several occasions, to my patients' detriment, the radiating heat being so great as to cause acute inflammation of the whole cavity, and great swelling of the face. The electrical energy could be sufficient to make platinum white-hot in one second of time while held in the air. Of course, if the current was allowed to continue, the wire would be burnt in about three or four seconds; but when the electrode is set on the tissue, this keeps the wire from becoming sufficiently hot to be destroyed.

**867.** I prefer to place the electrode on the spot to be cauterized, and then make the connection with my foot, never using my finger or thumb for making the con-



nection, as this would necessitate holding the instrument so firmly in my hand that I could not be certain of the degree of pressure I was making on the part being burned.

Immediately on the withdrawal of the electrode, spray the cavity with spray producers Nos. 2 and 5 (see page 344), employing the vaseline comp. given on page 384. This will have a soothing effect, but if the patient still complains of the distress from the burning, I apply the oleate of cocaine. This is an excellent preparation and produces a much more lasting effect than the solution. The strength I now employ is 5 per cent.

The next day the patient should receive the regular treatment with the spray producers.

**668.** As soon as the patient can endure a second application of the cautery, it should be applied. Generally one or two applications a week can be borne without great discomfort.

**669. Caustic Applicators.** The applicator that I have most frequently used, has been a silver probe. When I desire to use chromic acid—which is very seldom—I heat the point of the probe, and then touch it to a crystal of the acid, the crystal instantly melts and coats the probe point. As soon as the instrument is cool, it is ready for use. Cocaine, a 5 per cent solution, should be applied to the parts frequently, for half an hour before the acid is applied. Care must be taken not to hold the acid too long on the parts to be destroyed; but just to touch the parts is quite sufficient. The spray of vaseline with the No. 2 spray producer, should be applied immediately after the touch is made.

**670. Crushing forceps.** There are some growths that disappear quickly by being merely crushed by the polypus forceps (figure 115). This has an advantage over an operation that removes the growth, no scar tissue being made. After the growth has been grasped and crushed—a five per cent solution of cocaine mixed with vaseline having been sprayed on the parts—and the forceps



locked by pushing the ring *b* over the arms with the lever *a*, the patient should be directed to take hold of the forceps and hold it in as comfortable a position as possible for fully half an hour. When the forceps are removed, the tissue grasped will be seen as a whitish projection; all the blood-vessels will be destroyed, so that there will be no circulation in it. The result will be a sloughing of the projection and a permanent lessening of the growth, without apparent cicatricial tissue being formed.

**670** (*a*). Figure 118 illustrates the forceps I use for



Figure 118. Pharyngo-nasal Forceps.

crushing growths on the vault of the pharyngo-nasal cavity. These growths are frequently fibroid in formation. The manner of crushing these growths is quite similar to that just described in **670**. In this region the crushing will be required to be repeated every other day for several weeks, that is if the fibroid tumors are large and solid. If there is much pain, the parts should be sprayed with a five per cent solution of cocaine mixed in vaseline.

**671. Turbinated Bone Scissors.** When the inferior turbinate bone becomes necrosed, or excessively enlarged,



Figure 119. Heavy scissors for clipping turbinated bones and growths in the turbinated processes.

the best results follow its removal by surgical means. In such cases a strong pair of scissors is a good instrument. Figure 119 illustrates the scissors I employ for



this purpose. Formerly I have removed the thickened tissue from the turbinated processes by these scissors; but I now frequently remove them by the wire ecraseur as already described.

**672. Removing a portion of the inferior turbinated bone** is accomplished in the following manner:

The nasal chamber is thoroughly cleansed by the No. 2 spray producer, figure 90, and vaseline: a five per cent. oleate solution of cocaine is applied to the whole chamber every three minutes for half an hour. The effect of this will be to anæsthetize the parts and cause a remarkable shrinking of all the tissues in the nasal cavity, which makes more room for the entrance of the blades of the scissors. No nasal speculum is used; the scissors are passed in the nostrils as far as can be done, and the turbinated bone grasped between the blades; a quarter of an inch is clipped at a time, and then the instrument is again pushed further in and more bone clipped. This is continued (very much easier said than done) until all is removed that is desired.

**673.** From the moment that the first clip of the scissors is made, the **blood will flow very profusely** from the nostril and from the patient's mouth; but this must not check the clipping operation. The patient is directed to spit the blood out into a small vessel held under his mouth. The operation is quite a bloody one, and causes great pain even when the cocaine is thoroughly applied. The bleeding does not last long. I usually employ the catheter nasal douche, throwing a pleasantly cool stream into the nasal cavity. After the blood has ceased to flow, the whole chamber is sprayed with the spray producers No. 4, 5 and 2—using them as named—spraying about a drachm of the following mixture with each instrument, namely:

B. Vaseline	3 ij
Oleate of Cocaine 5 per cent	3 ij
Mix. To annul pain and decrease hyperæsthesia.	



**674. After treatment.** The next day, the cavity should be thoroughly cleansed of every particle of blood, and the usual applications made by the spray producers. The cut generally heals over in about two weeks, except in syphilitic patients having light hair. With these the wound will not be covered with cicatricial tissue before the lapse of three to six weeks.

**675. Tonsil Vulselum and Bistory.** I prefer to excise a hyperplastic tonsil with a round pointed straight bistory, and a four or six toothed vulsellum. The excision is less mechanical, that is, more under the control of the operator, and also much less painful than with any kind of a tonsiltome I have ever used. In many instances, except in patients under 10 years of age, I instruct the patient how to hold his tongue down and out of the way, with the tongue depressor. The great majority of my students express a strong doubt of the patient's ability to maintain the tongue depressed, but they were convinced of their mistake upon seeing even girls and boys, a little over ten years of age, undergo the operation as I have described it. The tongue being depressed, I grasp the lower portion of the tonsil with the forceps, raise it, draw it outward, that is, toward the center of the fauces, and pass the back of the bistory along the side of the tongue with its edge upward, and make the cut upward near to, but avoiding the pillars of the arch of the velum.

**676. If the tonsil is large and flat,** I endeavor to cut off but a thin portion only, the top of the hyperplastic glandular structure, so that the contraction that follows the effect of the cicatrization of the wound will cause the absorption of the remainder of the hyperplastic portion of the tonsil.

A 5 per cent solution of the oleate of cocaine is sprayed on the tonsil before the operation. The hemorrhage is never great, if the case is properly treated. As soon as the hemorrhage has ceased, the cut surface should be sprayed with the vaseline and eucalyptol mixture (see index).



**677. Timid patients.** If the patient cannot, on account of dread of the operation, be entrusted with the tongue depressor, then it must be placed in the hand of an assistant, who can hold the tongue down and retain a grasp of the hands of the patient at the same time. To do this he should kneel beside the patient. Another assistant will be required to hold the head of the patient in proper position. If possible I use the tonsil bistory and vulsellum, as described above. If the child will not remain still enough for these instruments, I resort to Matheu's Tonsiltome, illustrated in figure 120. The form-



Figure 120. Matheu's Tonsiltome.

ation of the instrument indicates so plainly its mode of use that a lengthy description of its application is not required.

**678** The tonsiltome is taken in the right hand, the thumb passed into the ring on the external end of the instrument, and the index and middle fingers passed into the two side rings. In passing the instrument into the mouth, the fork must be placed toward the middle of the mouth, and the ring that covers the circular knife must be placed over the tonsil. The closing of the thumb and two fingers sends the fork through the tonsil, which, by a mechanical arrangement of the instrument, draws the tonsil further through the ring, and the circular knife cuts off the top of the tonsil, completing the operation with one simple motion of the hand. It is so arranged that the fork can be made to draw the tonsil but slightly, or fully half an inch further through the ring, so as to excise but little or fully half an inch of the enlarged organ.

This mode of operation is more painful than that performed with the bistony, but frequently, in the case of children, it must be resorted to.



The usual local treatment should be given the next day.

**679. Uvula Excisor.** The uvula is very liable to slip from the instrument; and to prevent this I slip a piece of rubber tubing over one of the blades of my uvula excisor. But one blade of the excisor cuts, the other blade presents a flat surface to the sharp blade. The sharp blade, in excising the uvula, cuts into the rubber tubing, but does not quite touch the dull blade. The uvula does not slip off the rubber as it would a metal surface.

**680.** I grasp the lower portion of the uvula by a long slender and sharp forceps to prevent it from being rotated by the velum, and then amputate the lower portion of it with the excisor. The hemorrhage is slight, and the pain trifling.

**681. Tubular Laryngeal Forceps.** The obstacles encountered in the extraction of tumors and foreign bodies from the larynx are numerous, some of which have to be overcome by local applications to the sensitive parts operated upon, others by dexterity of the operator in handling the instrument. Another difficulty is found in the shape of the instrument usually employed. The greatest length of the vertical portion of the laryngeal forceps, that is not both in this country and in Europe, and that can go into the larynx without touching any of its parts, is not long enough, in the majority of cases, to reach the vocal cords without, at the same time depressing the base of the tongue from one-quarter to three-quarters of an inch.

**682.** The patient may learn to tolerate the pressure of the tongue, and to overcome the natural tendency of the fauces to close spasmodically when touched, but it requires from one to three weeks daily practice to do so. Even after this practice, the force exerted by the tongue, and its upward movement—a result of the pressure upon it—is always the same, because of the mental apprehension so natural and even unavoidable with most patients



about to undergo such an operation; therefore, the force required to overcome the resistance must vary to some extent as to occasion frequent failures.

**683.** The length of the vertical portion of laryngeal forceps is necessarily limited by the bounds of the space through which it must pass to enter the larynx; that is, during its passage, no part of it should touch the base of the tongue, the soft palate, the epiglottis or the posterior wall of the pharynx, since mere contact of the instrument, in a throat not educated to such usage, will produce instant depression of the epiglottis, if not the closure of the fauces, and, consequently, the attempt to reach the vocal cords will not be successful.

**684.** To overcome this obstacle, I have devised Tubular Laryngeal Forceps, which is illustrated in figure

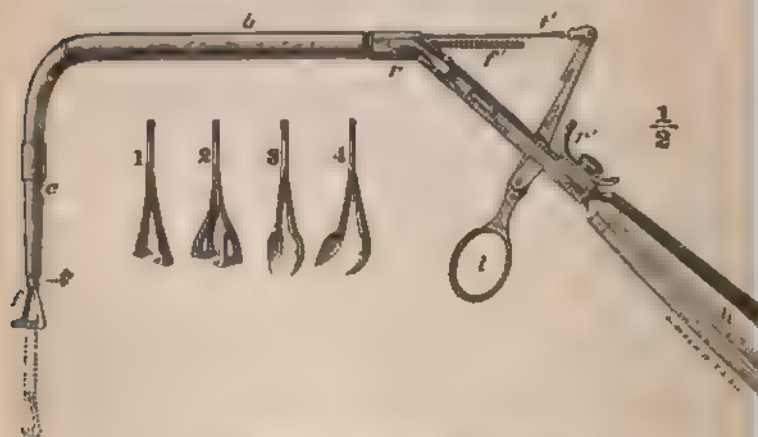


Figure 121. Tubular Laryngeal Forceps.

This instrument can be passed readily into the larynx and then lengthened to the extent required to reach the vocal cords in the longest neck.

**685.** It consists of a tube, *b*, *c*, seven inches



bent at a right angle, forming a horizontal and a vertical portion, the latter, *c*, being two and a half inches long. To the horizontal portion of the tube, *b*, is attached a handle, *h*, six inches long, at an angle of 45°. On the handle is a lever, *L*, two and a half inches long; this is connected with a rod, *f*, which passes through the entire length of the tubular portion, *b*, *c*, and is attached at its lower extremity to a smaller tube, *t*, within the larger one, by which the vertical portion, *c*, is lengthened, and the forceps closed at will. Underneath this rod is another, *f'*, whose upper extremity is serrated, which also passes through the tubular portion, and terminates in a socket, into which is screwed the forceps, *f*. There is a slide on the handle, which is moved by a hook-shaped projection, *r*. This is so connected to two short levers, which act as retainers, seen at *r*, that pressure on the hook-shaped projection *r'*; causes the retainers to grasp the serrated rod, *f*, and hold it in the position desired, and thus prevent the further descent of the forceps, *f*. The outside of each limb of the forceps is serrated, the purpose being to cause the descending tube, that closes them, to retain its hold, or position, even when the pressure on the lever, *L*, is withdrawn. Forceps of various shapes and sizes, as seen at 1, 2, 3 and 4, may be screwed on, in the place of the one represented on the instrument.

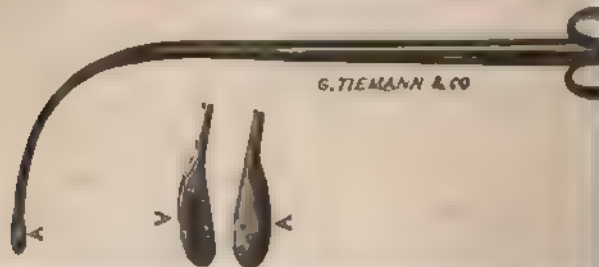
**386.** The method of using the instrument is as follows: The patient is given the tongue depressor, with which he is directed to hold his tongue down. This being done, the pharyngeal mirror is warmed and held in the fauces, with the left hand. The object to be removed by the forceps is found and maintained in sight. Now the forceps are passed into the fauces just right in front of the pharyngeal mirror, so that it, with the object in the larynx, may both be maintained in sight. It must not be forgotten that the forceps, *f*, and the object in the larynx must remain continually in view, or the whole operation



will be a failure. After the vertical portion, *c*, introduced into the larynx, it is lengthened by *l*, pushing both rods *t*, and *f'*, into the horizontal tube *b*, which causes both the smaller tube, *t*, and the *f*, to descend, as seen by the dotted lines in the figure. As soon as the desired length has been reached, the serrated rod, *f'*, is arrested by pressure being applied to the hook-shaped projection, *r'*, with the thumb, causing the lever, *l*, to retain it and the smaller tube in the position required. The forceps are then closed by continuing the pressure on the lever, *l*, causing the smaller tube, *t*, to be attached to it, *l*, to push the smaller tube, *t*, to the base of the forceps, which closes it on the tumor to be removed. The serrations on the outside of the forceps blades, cause the smaller tube to remain in the position to which it has been placed, thus holding the tumor grasped. Relaxation of pressure on the lever, *l*, causes the spiral spring in the horizontal tube *b*, to shorten the lever at *l*, so that the instrument may be withdrawn from the patient's larynx.

**687.** It will require long practice for the student to learn to use this forceps, and it should be practiced on the phantom head at least once every month. The use of the forceps in grasping objects from the hand or table should not be practiced, as this will educate the student to erroneous motions.

This is the most difficult operation that an operator is called upon to perform.



**Figure 122.** This instrument has too large a curve; the curved portion will touch the epiglottis before the vocal cords are reached.



Its vertical portion is long enough to reach the vocal cords, then it is too long to be introduced without touching the base of the tongue and top of the epiglottis.



Figure 123. This represents an instrument that was at one time very popular. It was used to hold small pieces of sponge, which was dipped into tincture of iodine and applied to the money making follicular pharyngitis. When local applications are required, it is a good instrument, but this method of making local applications is very defective.



Figure 124. This instrument is popular, but valueless. One can almost as much with a curved dressing forceps.

**688. Ear Injectors.** The removal of inspissated cerumen and foreign bodies from the ear are frequently best accomplished by ear injectors. The instrument illustrated in figure 125 is convenient as well as very effective.



Figure 125. Curved Ear Injector.

It is attached to the reservoir for washing the ear, figure 109. The injector, *i, g*, is removed from the tube, *c*, and the Curved Ear Injector slipped on in its stead. The container *a*, is filled with warm salt-water—about a dram to the pint—the temperature being as warm as the patient can stand without pain. To prevent the water, as it comes from the



ear, from running down the patients neck, I place the Ear Spout, illustrated in figure 126, on his head.

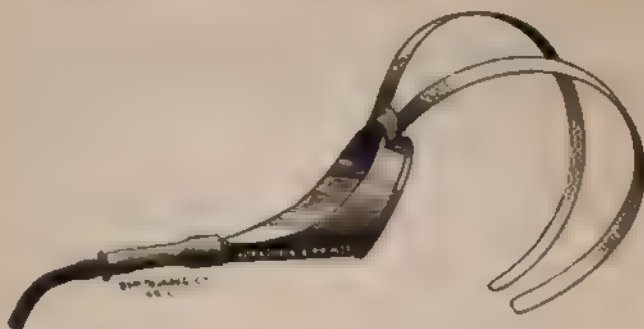


Figure 126. Ear Spout. The illustration does not show, as it should do, the entire length of the rubber tube that conducts the water from the spout, to the receptacle at the patient's side.

**689. Manner of using.** The warm water should be made to run through the ear injector long enough to warm the rubber tubing, c, and the injector, and then directed into the auditory canal. All the force should be given to the stream that the patient can bear without pain, but pain must not be given, as great danger to the drum membrane may result, such as acute inflammation, so severe that it might be necessary to perforate it to give relief. As a general thing, vertigo will ensue before great injury be done to the membrana tympani.

It sometimes requires one and two quarts of warm water to remove the cerumen.

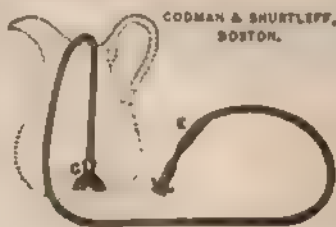


Figure 127. An instrument like the one represented here, is frequently used to wash the cerumen from the ear. When using it a



bowl must be placed under the ear, which can be held by the patient. There is almost no liability to injure the patient by the force of the stream if the pitcher, containing the warm water, is not held more than two feet above the patient's head.

690. If the mass of cerumen does not completely fill the auditory canal, and a large enough space is left to pass a common sized probe, I prefer to use a small ear injector—illustrated in figure 128. It can be passed over



Figure 128. Small Ear Injector. This illustration is a little larger in diameter than the instrument itself. All of its streams are recurrent and very fine.

the hardened mass, without causing the least pain. Its streams are thrown from the sides of the instrument, and flow backward also. The instrument is bent upon itself so that when passed into the ear, the hand that holds it does not obscure the view into the canal. As the stream flows slightly toward the outer portion of the auditory passage, it will dislodge the accumulated secretion, and wash out the ear.

691. It will be noted that this instrument is an excellent one to wash out or dislodge foreign bodies that may be in the ear, provided they do not completely fill the canal, for the stream can be thrown behind the obstruction.



**692. Ear Forceps.** Aural polypi may be crushed by an ear forceps, such as Bumstead's figure 129, which

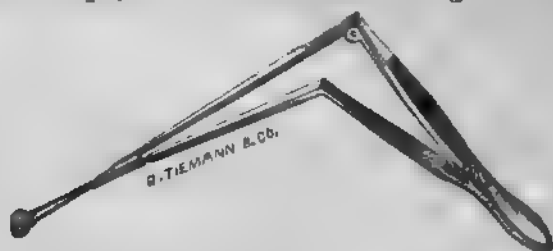


Figure 129. Bumstead's Canulated Ear Forceps.

is done by a steady hand and is painless, and will be certain to cause their disappearance, that is if the rhœa is properly treated afterward. The manner of crushing is to first instill a few drops of the 5 per cent solution of the oleate of cocaine into the ear, after which tumor may be grasped and held for a few minutes, and the operator is sure that disorganization will follow.

**NOTE.** Other instruments belonging to this class will be described when the descriptions of the operations are discussed.



## SECTION II.

### Management of Patients in Examinations, Applications and Operations.

The proper management of patients in the office and in the sick room will go far to insure success. Of course it will not take the place of medical knowledge or surgical skill, but these two important acquisitions will be greatly neutralized by the neglect to practice proper judgment in drawing out the patient's history of his case; by not using sufficient tact in making physical examinations to engender confidence, and not knowing how to beget so much interest or even enthusiasm in his own case, that he will make the study of such laws of hygiene as are suited to his condition a specialty, not only this, but will enjoy taking such good care of himself that an improvement of health must follow, even if the local applications are but imperfectly made. This is what I call proper management.



## CHAPTER V.

### OFFICE EXAMINATIONS, ETC.

**693. Preliminary.** Success in this department of medicine, will depend, in a great measure, upon the proper management of the patient in examinations; upon the kind of answers given concerning the probable result and duration of the treatment, and upon dexterity in applying local remedies. If awkwardness, timidity or ignorance is exhibited, it may be depended upon that the patient will observe it, and will not only discontinue his visits, but will report to others his impressions.

**694. The patient should be studied closely;** that is, his mode of breathing; his tone of speech; his acuteness of hearing; and if he coughs, its peculiarity. By close attention to the tone of the cough, it may be detected whether it comes from the nose, the pharyngo-nasal cavity, the pharynx, the larynx, or from still lower in the respiratory organs. A cultivated ear will detect the location of the cough at once.

**695. In asking questions,** in order to become acquainted with his subjective symptoms, do not give the answer you expect in the question you ask him. In a word, don't make out a case for him. This serious mistake is made by many physicians in this country and Europe.

It is very injudicious for an examiner to put the words in the patients mouth. Some patients will actually say yes to a symptom mentioned by the physician, not because they have experienced it, but because they think that "the doctor knows better" than they do. It is seen that the physician in doing so, is making his own case—



purely hypothetical one—and he should not be greatly disappointed if a cure is not the result of treatment. A cure cannot follow unless this hypothetical case and the one before him are identical.

**696. It is very important to note all voluntary information** that he may give at any time, but more so after the commencement of treatment; especially will this be valuable in the future conduct of the case, if he is an intelligent patient.

**697. Do not give too much encouragement.** The effects of the treatment will soon speak for itself. If the patient does not improve as rapidly as he expected, excess of encouragement may have the effect of discouraging him, and lead him to discontinue a treatment that might be very beneficial to him. It is possible to give a great deal of encouragement in the way answers are received concerning his symptoms that indicate improvement. With many patients encouragement is a very good tonic, and should be given whenever it can be done, and at the same time be consistent with truth.

**698. If a patient's lungs are seriously involved** I would not consider it my duty to volunteer such information to him, but I would certainly inform his relatives or friends of the fact, at the same time requesting them to keep him ignorant of the information given. It is the physician's duty to avoid everything in expressions as well as in actions that will have a depressing effect upon his patient's mind. A mistake might have been made in the prognosis, in which case the physician might be really assisting the disease to destroy the patient. I have seen this done several times, and have had several patients that I was certain would soon die, recover completely; but had they known what I told their relatives concerning my opinion of their condition, I fully believe they would not have recovered. It should be kept in mind that all catarrhal patients are predisposed to many forebodings and a dissatisfied condition of mind, and that their physical welfare, such as appetite, digestion, sleep, etc., are very liable to be seriously interfered with, by mental disturbances.



**699. Positions of the Patient and Physician in the Examination of the Nose and Throat.** I prefer to have my patient sit at my left side and a little in front of me, and not in the exceedingly inelegant position we see illustrated in every work on Laryngology. These represent the patient with the knees between the physician's, or *vice versa*. With my patient at my left side, both he and I need to turn but slightly to the left to put us face to face, and my eyes will be but 9 to 12 inches from his face. In this position I can best see his air passages, make examinations, applications and perform operations. In this condition, my table, containing the remedies and instruments, is at my right, where I can conveniently reach them with my right hand. See figure 130.



Figure 130. Illustrating the position of the patient on the left of the physician. The patient is depressing his tongue with the tongue depressor.

**700.** Before the patient is directed to take a seat in the chair, I draw it close to my chair, so that the side



portion of each touches, or at most is not more than 2 or 3 inches apart. The patient is then directed to sit down in the chair. This places him along side of me, and so close that we touch each other.

**701 Examinations of Nasal Passages.** If the patient complains most of a disease of the nasal passages, the nasal speculum, figure 27, 452, will be the first instrument I require in the examination. I take notice of the color and size of the turbinated processes, and the color and shape of the nasal septum. If I can see back to the posterior wall,—which is not an uncommon occurrence, I ask the patient to swallow once or twice. If polypi are seen, I entrust the patient with the nasal speculum, and make a more complete examination with a probe; or by aid of an anterior nares mirror, figure 28, 454. If caries of a turbinated bone is suspected, I spray the parts thoroughly with No. 2 spray producer, figure 90, 613, using plain vasaline, and then again insert the anterior nares mirror and examine with a bent probe. If the parts are very sensitive I spray them again, using a No. 1 spray producer, with about half a drachm of the mixture mentioned in 673.

**702. Wash the instruments.** This examination completed, I then take the pharyngeal mirror, figure 29, 455, dip it in a bowl of carbolized water—a  $\frac{1}{100}$  solution—that is on the operating table, and wipe it dry on a clean napkin. I do the same with the tongue depressor, figure 32, 463. These two instruments are always washed and wiped before the patient so that he may feel satisfied that he is being examined and operated upon by clean instruments. After warming the tongue depressor, so that it will not be disagreeable to place in the mouth, I pass it to his right hand, and direct him to place it well back on his tongue, but not so far as to occasion a sensation of retching. While he is engaged in doing this, I make the pharyngeal mirror slightly warm, to prevent the vapor of his breath from condensing



on it and dimming its reflecting surface. After holding it a moment over the light, I touch the back of the mirror to the back of my hand, to ascertain if it has the right temperature. I then introduce it with my **left hand**, holding it as I do a pen in my right hand, leaving my right hand disengaged.

**703.** The reason for employing my left hand in using the pharyngeal mirror, is only because I desire to reserve my right hand for the use of other instruments that will require my utmost dexterity and skill; for instance, the tubular laryngeal forceps, figure 121, the post pharyngeal forceps, figure 118, the post pharyngeal galvano-cautery, etc., and all instruments that must be handled with the right hand, while the left hand must use the reflector. In removing foreign bodies from the larynx, the difficulties to be overcome are well nigh insurmountable; the patient is under excitement; is not accustomed to instrumentation; cannot control the throat or tongue; and cannot help resisting every effort made to remove the foreign body. If I use my right hand in making daily examinations, and then be required to remove a pin from such a throat, I would be compelled to use the hand that was unaccustomed to hold the pharyngeal mirror, and being unaccustomed to such manipulations, would be unable to follow the patient's head, without touching the parts so roughly as to induce, if not compell spasmodic contraction of the muscles of the fauces, and thus thwart all efforts at removing the foreign body. But if I use my left hand in making my daily examinations, I will in a few months, at most, acquire such dexterity that when I am called upon to remove a foreign body from the larynx, I can use this, my now educated left hand, to excellent advantage. This alone is sufficient to make it important to use the left hand in making daily pharyngeal examinations with the reflector, not to mention the frequent employment of other instruments that must be used with the right hand, while the left hand must use the pharyngeal mirror.



**704.** While the mirror is in the fauces, I rotate it, or, with the lever on the handle, alter its angle of reflection, when I desire to view the different parts of the pharyngo-nasal, or post nasal cavities or the larynx.

**705.** I always inspect the pharyngo-nasal and post nasal cavities first, as these are the regions first and most affected, and after that the larynx. With sevenths of my cases, I give the larynx but one inspection as this organ is always secondarily affected, and seldom requires direct medication.

**706. Minutia.** Usually, when the patient depresses his tongue, the free edge of the soft palate and the uvula will hang free and not touch the base of the tongue. If this is the case, the pharyngeal mirror can readily be passed behind the pendant velum and uvula and an excellent view can be had of the cavities above; but if I cannot readily pass the mirror behind the soft palate, because of its elevation and pressure against the posterior wall of the pharynx, I direct the patient to make a slight effort to breathe through the nostrils. This frequently brings down the soft palate, but if this does not succeed, I ask him to make a slight effort to pronounce the syllable *ing*, in doing so he must lower the soft palate. If he makes a strong effort, and phonates the *ing* faintly, the base of the tongue with the tongue depressor will be raised so high that the mirror will be covered, which will of course prevent inspection.

**707.** If the soft palate, when it hangs pendant, is still within a quarter of an inch of the posterior wall of the pharynx—which will of course prevent inspection of the pharyngo-nasal cavity—the uvula retractor, if used properly, will increase the space fully one-quarter of an inch more, which will give an abundant opportunity for a complete examination.

**708.** If a tumor is discovered, and an instrumental examination is required to locate its pedicle, the



tongue depressor should be given into the patient's left hand, which will leave his right hand free to hold the spreading soft palate retractor, figure 42, which will be required to draw the velum as far forward as possible. After the retractor has drawn the palate forward, and the handle is given into the patient's right hand, the pharyngeal mirror and such other instruments as may be required, can now be employed to make a complete examination.

709. If from the first examination, the soft palate, the base of the tongue, and the posterior wall of the pharynx are touched but slightly, or, still better, not touched at all, the parts will soon be educated to tolerate the introduction of instruments without causing a spasmodic closure of the fauces. The patient should be repeatedly told to breathe freely and naturally at all times. This will cause the velum to hang pendant and passive, the condition that it must be in, to allow an application to be made.

710. I have seldom treated a patient who has previously been under the care of **another physician**, who does not require especial and frequent instructions on breathing. The reason is, their physician had really educated the throat to remain in one continual spasmodic contraction: the soft palate is retracted and pressed firmly against the posterior wall of the pharynx, which, of course, prevents inspection of the pharyngo-nasal cavity, and the posterior nares.

711. The physician must not, at any time, call the patient's attention to the position of the soft palate. Often, when directed to hold it in a right position, the more certainly will it assume a wrong one. Frequently patients have naturally held their throats in the best possible way for successful treatment; but on having their attention drawn to this fact, have failed to give it that position again, and, in fact were unable to recall the way in which they had held it. The reason for this is obvious.



The easiest thing for a patient to do, is to cause muscular contraction, and almost always when they are asked to do something for the physician, it is done by the aid of muscular contraction; but placing the palate in a pendant position, is the opposite of muscular contraction. It is permitted to take place, or, in other words, it can take place by the inactivity of the muscles. It is impossible, almost, to explain to patients the way to allow muscular inactivity; and the only way to readily bring about this condition of the soft palate, is to tell them to breathe freely and naturally, which at once brings about a perfectly passive condition of all the muscles of this part of the fauces.

711 (a). Several years ago, I had a lady patient, on whom I had been making applications every other day for about six weeks. On one of her visits she brought a lady friend with her for treatment. I treated the new patient first, who then took a seat and observed me make the application to her friend. When she saw the spray coming freely out of her friend's nostrils, she remarked that she was sorry she could not hold her throat in that way, as she was sure the treatment would have been more beneficial had she been able to do so. The lady, whose throat and head were being sprayed, remarked that she was not conscious that she held her throat at all. This was perfectly correct. Now for the sequel: at her next visit to my office for treatment, she was totally unable to control her throat. Her soft palate was raised against the posterior wall of the pharynx, and no effort on her part nor any sound that I could direct her to make could induce the velum to become passive and pendant; nor did I give her a perfect treatment until three weeks had passed, while the new patient's throat and head were perfectly treated, her attention not being again called to the way in which she should hold her throat. During the three weeks, I directed the first patient to hold her tongue down with a spoon (bent to a little more than a right



angle) before the window, with a small looking-glass so placed that she could see the soft palate, and learn, from practice, to maintain it in a pendant position. She succeeded perfectly.

**If I treat the new patient first**, she will not be frightened at the manner the instruments are used, for the reason she feels that they do not cause the least pain. If she should sit to one side and see the spray producers placed in the mouth of her friend, hear the spray going up into her head, and see it issuing in large volumes from her mouth and nostrils, she would be "certain that she could not stand that kind of treatment" and might go away without being treated; but if she is treated at once, she will be spared this fright, and will know that the treatment is not the least painful.

**712.** There are patients whose throats are so sensitive, that they can hardly tolerate the tongue depressor far enough back on the tongue to expose the lower border of the soft palate. In cases of this kind, it is impossible to make a successful examination or application the first time. I am satisfied if I can make a partial examination, since, as at the next few visits they will likely have learned to tolerate the pressure of instruments, and know from experience, that nothing disagreeable or painful is done.

**713. Examination of the Larynx.** If the larynx is to be inspected, the pharyngeal mirror is to be held with its reflecting surface downward, the patient still retaining the tongue depressor on his tongue. I then direct the patient to pronounce the sound *aye* distinctly, but with only *slight* effort. If he makes quite an effort and does say *aye*, or a sound nearly like it, he will raise his tongue and the tongue depressor, which, of course, will prevent the mirror from being seen; but if he does as he is told, he will sound it *ah*. This is right, as *ah*, distinctly said, will raise the epiglottis so high that the whole length of the vocal cords can be seen, and frequently a short portion of the trachea also. If the patient is



asked to say *ah*, he will sound it *owc*, which will not raise the epiglottis sufficiently high to see the vocal cords. For this reason he must be directed to say *aye*, that is, he is asked for one kind of a sound, knowing that he will produce another, which may be the one wanted.

Should this effort fail to cause the patient to expose his larynx sufficiently, he should be requested to take the depressor off his tongue for a moment, and although frequently told to breathe freely and naturally, it will be noticed that he will at once take in a long sighing breath. After this rest, direct him to again place the tongue depressor on his tongue, and then to take in a long full breath and again say *aye*, as continuously and distinctly as possible. Should this fail, give him another rest, and then start anew. It is best, however, not to weary a new patient by too persistent efforts at an examination.

714. As soon as the view is had, the mirror should be withdrawn, and the patient allowed to breathe; for although he is told to breathe naturally and freely during the examination, it will be found that he has not done so. Many will say they cannot breathe while their tongue is depressed.

715. **First Examination.** I do not care to make a complete examination at the first sitting, except in cases in which I suspect an ulceration or a growth, or in those who visit me for the removal of a foreign body; but sufficient should be seen to inform the patient of his condition, the severity of the disease, length of time required for treatment and to ascertain to what part of the larynx it is necessary to direct the sprays, if any are to be used.

715 (a). Care should be taken on first examination to avoid causing unpleasant sensations, for by so doing, the throat may be educated to tolerate a somewhat free contact of the instruments, so that medicated applications may be made as thorough as the case demands. The



patient will require to be frequently reminded to breathe freely and naturally.

**716. Examination of the Lungs.** Almost every patient who has a chronic naso-pharyngitis, has a cough; if this cough lasts a few months at most, it will necessarily produce a sore throat, and if the throat symptoms last even but a few weeks, it in turn will be certain to induce pain in the chest.

**Coughing is the severest usage that a throat can be put to.** A throat in an entirely healthy condition will become inflamed by coughing slightly even for two weeks. I have had patients cough with their mouth closed 20 times, and with their mouth open for hard coughs, 5 times in a minute, and maintain this exertion for one and a half hours while in my office. Of course their walk to my office aggravated the cough, but they insisted that they coughed fully as much from the time they got out of bed, 8 o'clock in the morning, until they got to sleep at 10 o'clock at night. Such usage is certain to induce inflammation in the healthiest larynx and also tend to induce emphysema in the strongest lungs.

When the patient desires an examination of his throat, he may also be anxious for an **examination of his lungs**. This condition of things compels the insertion of a few brief instructions regarding percussion and auscultation of the lungs, and auscultation of the voice. Many of these patients will also complain of some disturbance of the heart, which will require the attention of the physician. These subjects will be found in Chapter VII.

**717. Examinations of the Ears.** If the patient desires an examination of his ears, I change the position of his chair, so that he will be seated with the ear that is to be examined directly in front of me. If possible I employ natural light. I take the smallest Wild ear specula, figure 44, dip it in the bowl of water, wipe it dry, warm it, and pass it into the auditory canal, drawing the helix upward and backward, which straightens the canal and allows a better opportunity for inspection; this can be done without the least disagreeable sensation.



**718.** I use a lens, of two and a half inch focus to increase the light and enlarge the view of the membrana tympani. If I am not satisfied with this inspection, I employ the acon-otoscope, by which I can determine whether or not there is an attachment of the membrana tympani to the promontory, and also ascertain whether or not there is a catarrh of the Eustachian tube.

**719. Perforation.** If I suspect a perforation of membrane, I use the tuning fork for the purpose of detecting it. If upon closing the patient's ear by pressure on the tragus, while the tuning fork is vibrating on the upper incisor teeth, the sound is not made louder than when the canal is open, the indications are that there is a perforation of the drum-head.

**720.** In every instance where an ear is examined, the differential diagnosis of internal and middle ear trouble should be made. This also, is done by the tuning fork. It is made to vibrate, and the upper prong is placed within half an inch of the auditory canal. The patient is required to observe the distinctness of the sound. The fork is again struck with the same force, and the handle of the fork is placed over the center of the mastoid process. If the sound is more distinct while the fork is on the mastoid process than when placed before the auditory canal, it indicates that the internal ear is in a normal condition, and the middle ear is the part diseased. This experiment should be repeated after inflation of the middle ear, as sometimes the removal of a small quantity of mucous from the Eustachian tube will also prove that the acoustic nerve is unaffected.

**721. The Watch.** In examining the ear by the watch, it should be brought towards the ear, while a book or some object is held so that the patient cannot see the watch, and distance noted in inches. In writing the history of the case, this distance is written as a numerator of a fraction, the distance that the watch is heard by persons of ordinary good hearing is written as the denominator.



**722.** If there is suppuration of the middle ear and perforation of the membrana tympani, and the quantity of pus is so great that inspection cannot be made, one of the ear injectors should be employed, after which the middle ear should be inflated, and the auditory passage dried completely with absorbent cotton.

**723. The Method of Writing the History of a Case.** Note the external appearance of the nose, whether it is reddened or eczematous, enlarged, depressed or vascular; internally, whether there is hypertrophy or atrophy of the mucous membrane, or if there are polypi or ulcerations. The pharyngo-nasal cavity should next be examined, and all the peculiarities of that cavity noted; then the soft palate, whether its elevation is regular or irregular, ulcerated or inflamed; the uvula; the tonsils; the pharynx; the epiglottis; the ary-epiglottic folds; arytenoids; the vocal chords, and the general condition of the larynx. If the patient complains of disease of the ears, these ought to be carefully examined and noted, first the test by a watch, then by the ordinary voice, and afterwards by the tuning fork. The condition of the meatus should be noted, and then afterwards the membrana tympani. The Eustachian tube should be inflated by the Pulitzer or Gruber method, and its condition noted. If the cough has been of long duration the lungs should be examined by mensuration, auscultation and percussion, and the results noted. The temperature of the mouth should be taken by the thermometer. The action of the heart should be observed.

**724.** Since 1872 I have employed a method of keeping the histories of such of my patients as seemed to be interesting and instructive, that will economize time more than any method I have seen. I have termed it the **Under-score Method**. This is seen in full, on pages 408 to 414 inclusive. I find that it saves much time, as well as being quite an assistance in making out the history of a patient.







**NOTE.**—The underlined words contain the history of the case. Do not write out the "MENTAL CONSIDERATION" at first visit unless strongly marked, but wait to receive items during the course of treatment. On this subject, ONLY VOLUNTARY EXPRESSIONS ARE VALUABLE; in time you will get plenty of these.

No. ...., Sent by Dr. ...., Date. ...., 188... NAME. ...., age. ...., married, single. ....	Weeks. ....	Months. ....	Years. ....
Apparent health—good—bad, ....			
HAIR—full—moderate—sparse. WEIGHT—now, ...., usual, ....			
HAIR—dark—light—red—mixed gray, ....			
SKIN—light—dark—clear—discolored, ....			
COMPLAINTS OF, ....			
Mental complications, ....			
RELATIONS similarly affected, ....			
FORMER SYMPTOMS that are not present;—that is, how first affected, and when?			
PROBABLE CAUSES—cold—measles—scarlet fever—typhoid fever—cerebro-spinal meningitis—acrofula—syphilis—injuries, ....			
SYMPTOMS—month—years ago, ....			
DYSPEPSIA—Occasional—constant—slight—serious, ....			
MENTAL CONDITION, ....			
NOSE—Secretions—normal—slight—increased—great—inspissated—dry, ....			
Nasal Respiration—normal—impeded—suppressed—day—night, ....			
PAIN—slight—moderate—great—headache—much—little—Neuralgia—face—forehead—top of head—all-over, ....			
OLFACTION—normal—anoemia—slight—complete—for—months—years—Colds ever since I can remember—occasionally, ....			
THROAT—Deglutition—normal—difficulty—slight—moderate—great—causing pain in the ear—right—left—dry in the morning, ....			
VOICE—natural—hoarseness—slight—great—intermittent—fatigue—slight—great, ....			
EARS—Deafness—slight—great—noises—right—left—months—years—Otorrhoea following pain—slight—moderate—great—right—left, ....			
TREATMENT—Domestic, ....			
Medical by Dr. ...., Results, ....			



State of bowels--normal--Constipation--occasional--habitual--Chronic diarrhoea--slight--severe.....  
 Hemorrhoids for--years--months--external--internal--bleed--little--much--frequently--Fistula in ano.....  
 Coughs--seldom--frequent--constant--severe--slight--more than any one I know of.....  
 Head--Headache--neuralgia--in--forehead--temples--vertex--occiput--slight--severe--frequent.....  
 Pain in back of neck to right--left shoulder and arm--yes--not now but--months--years ago.....  
 Vertigo--slight--severe--yes--not now--but--months--years ago.....  
 Condition of Mind--normal--depressed--easily--annoyed--angered.....  
 Memory--excellent--limited--defect of--little--great--perverted action.....  
 Heart--normal--palpitation--slight--mediate--great--cannot lay on left--right side.....  
 Habits--Tobacco--chews--smokes--snuffs.....  
 Liquors--drinks seldom--moderately--habitually--to excess--beer--whiskey--wine--opiates.....  
 Sleep--Natural--excessive--for.....hours--interrupted by--pain--labored respiration--tinnitus aurium--anxiety.....  
 Nose--Pain--slight--moderate--great--high--low--for--months--years--epistaxis--seldom--frequent.....  
 Secretions--normal--increased--great--inspired--dry--watery--yellow.....  
 Nasal respiration--normal--impeded--suppressed--day--night.....  
 Olfaction--normal--anoemia--slight--complete.....  
 Throat--Dysphagia--solids--small--large--fluids--warm--cold--causing pain in ear--fluids pass into nose--dry in morning.....  
 Coughs--frequent--seldom--moist--dry--makes me--little--very sick at stomach--pain in chest--out of breath easy.....  
 Vocalization--normal--difficulty--slight--great--requiring constant clearing--hoarseness--aphonia--dysphonia--aphasia.....  
 Ears--Audition--normal--defects of--slight--marked--great--continuous noise--yes--no--quiet room--yes--no--excitement--yes--no.....  
 Tinnitus aurium--slight--marked--intense--constant--intermittent.....  
 Tympanophony--right--left--annoying--slight--much--great.....  
 Otorrhoea--mild--abundant--constant--intermittent--offensive--painful--purulent.....



AGGRAVATING AGENCIES.

DERANGED BOWELS—Constipation—diarrhoea—Stomach—by use of liquor—tobacco.....  
 WEATHER—cold—warm—hot—dry—humid—windy—spring—summer—autumn—winter.....  
 MENTAL fatigue—anxiety—excitement—fright—sleeplessness.....  
 IMPROVEMENT following—better state of health—yes—no—no difference—dry—humid—windy—warm—cold—hot weaber—pulling  
 pressing the ear—in a noise—quiet room—close my nose and mouth and draw in my breath—regular bowels—yes—no  
 —exercise—yes—no—moderate eating—yes—no.....

RESULT OF EXAMINATIONS; OBJECTIVE SYMPTOMS.

NOSE — Externally —color—normal—reddened —Eczema —Enlarged —Depressed—right—left—center —Vascularity—slight—mediate  
 great—Internally—dark—light—thickened—Vascularity—slight—mediate—great—Secretions—quantity—normal—increased—  
 viscid—bloody—mucopurulent—incrusted—offensive—Enlarged—inf. mid. turb. right—left—sept. right—left—  
 Polypi on inf. mid. sup. turb. pro. right—left—sept. right—left—gelatinous—fibrous—small—medium—large—Ulceration  
 on inf. mid. sup. turb. pro. right—left—sept. right—left—"x"—"slow—rapid—syphilitic—Necrosis—inf. mid. sup.  
 turb. bone right—left—sept. right—left—lachry. canal—right—left—Septum—deflected—right—left—perforated.....  
 PHARYNGO NASAL—Color—normal—red—dark red—polypi—"x"—"Secretion—normal—in excess—viscid—mucopurulent  
 incrusted—offensive—Vascularity—slight—mediate—great—Sensibility—normal—lessened—increased—Depression in pos-  
 terior wall—above—below—little—great—swelled—right—left side—above—below—Ulceration—follicular—phagedenic—"x"  
 —"slow—rapid—syphilitic—Complications with Sphenoidal and post. Eth. cells—Mouth Eustachian tube right—left—  
 normal—enlarged—diminished—inflamed—vascular.....  
 THROAT—Soft PALATE—normal—inflammation—general—pillars—elevation—regular—irregular—edematous—mucous patches—ulcera-  
 tion—"x"—"tumor.....



tell more than the other .....

PUARVX—normal—reddened dark red—Vascularity—diffused—slight—mediate—great—Secretions—increased—decreased—dry glazed—Follicular inflammation—acute—chronic—diffused—Neoplasms—small—large—few—numerous—Sensibility—increased decreased—Paresis—slight—local—general—Ulceration—<sup>m</sup> x <sup>n</sup>—Syphilitic.....

EPIZOOTIS—Curvature—normal—increased—inflamed—Vascular—thickened—oedematous—Ulceration—<sup>m</sup> x <sup>n</sup>—rapid—slow—apbilitic.....

ARY-EPICLORIC FOLDS—normal—inflamed—vascular—thickened—oedematous—ulcerated.....

ARTEROID PROCESES—normal—inflamed—vascular—thickened—oedematous—ulcerated—right—left more than the other.....

VOCAL CORDS—normal—inflamed—vascular—thickened—oedematous—ulcerated.....

TUMORS—gelatinous—fibroid—on ary-epiglottic fold—arytonoid—vocal cord—right—left.....

EARS.—HEARING—Watch—R.  $\frac{7}{8}$ —L.  $\frac{7}{8}$ —Contact—pressure—slight—moderate—hard—Voice—ordinary—loud—very loud—TUNING FORK

L. aërial conduction.....sec. bone conduction—on vortex—mastoid process—teeth .....sec—R. aërial conduction.....sec—bone conduction on vertex—mastoid process—teeth sec.....Increase upon closure of R. L. meatus—marked—slight—none—heard from R. L. meatus better than R. L.....L. MZATUS—normal—contracted—eczematous—furuncle—occluded—inflamed—ulcerated—quantity cerumen—normal—little—none—impacted—polypi—R. MZATUS—normal—contracted

eczematous—furuncle—occluded—inflamed—ulcerated—quantity cerumen—normal—little—none—impacted—polypi.....L. MEMBRANA TYMPANI—Appearance—normal—translucent—dull—opaque—shining.....Concavity—normal—increase—mediate—great—reddened—yellow—white.....

decreased—flattened—irregular—convex.....projection of short process—slight—moderate—great.....Shining spot—normal—dull—small—large—absent—Locality changed to.....

Structural changes—inflammation—slight—marked—excessive—diffused—peripheral.....vascularity—diffused—on manubrium.....thickening—slight—mediate—great.....ulcerated..... perforated



REMARKS.

[illegible]



## CHAPTER VI.

### MANAGEMENT OF PATIENTS, AND THE MANIPULATION OF INSTRUMENTS ETC., IN THE SICK ROOM.

**726.** If possible, I employ **natural light** for examinations and operations in the sick room. If the bed is not in the best position for throwing the light from the window into the patient's mouth, it should be moved at once. If this cannot be done, a reflection of natural light should be thrown by a small looking glass, upon the head reflector. (449)

**727.** If natural light cannot be had, I use a platinum illuminator (see figure 131) or a coal-oil lamp. The lamp should be held behind the patient's head, and the light thrown into the patient's air passages by the head reflector. Gas light may be employed the same way. If the gas light is not in a good position to throw the light properly, a small looking glass will have to be used to throw the light upon the head reflector.

**728.** The patient may be thoroughly examined while in bed lying on his left side. Lying on this side leaves his right hand free to hold the tongue depressor.

**729.** If natural light or a high gas light is employed for inspection, an alcohol lamp or a small coal-oil lamp will be required to heat the spray producers and the medicaments. If a coal oil lamp is used, great care should be taken not to smoke the instruments, as the smoke imparts a very disagreeable odor and taste to the instrument and remedy employed.



**730.** If the patient is afflicted with a tonsilar abscess, a tonsil bistoury may be required to evacuate the pus. It may be well to spray a little cocaine mixture on the inflamed tonsil previous to making the opening incision; usually the opening of a tonsilar abscess is not very painful, even without the application of an anæsthetic.



Figure 131. Mayer & Metzger's (London, Eng.) Platinum Illuminator.

A. Reflector, throwing the light from B, the platinum light, through the condensing lense C. D, a slide tube that governs the quantity of air that passes to the burner B. E, the gasoline or benzine (either are good) container. F, a faucet to govern the quantity of air that passes from the air bulbs, G. Half of an ounce of benzine or gasoline poured into the container E, will maintain the platinum point B, at a white heat for three hours. As the light is not used longer than fifteen minutes at a time with one patient, twelve patients can be examined and treated with one charge of the container E, or one patient can be treated twelve times.



**731.** If the patient is a young boy or girl, discountenance the usual assurances given by the parents, that "the doctor won't hurt you; he likes little children," etc. This is so frequently said to little sufferers, and almost as frequently the doctor does just what the parent said he would not do, that children take it for granted that the parents are telling an untruth. If the physician will check the parent's assurances he will do much to gain the child's confidence, and will be enabled to give him an effective treatment at the first visit.

**732.** Avoid making the patient sick at the stomach with first few local treatments. In a short time—usually after two or four applications—he will not make the least complaint about the disagreeableness of the application.

**733.** It is best to leave a complete set of instruments at the patient's house. These will consist principally of a tongue depressor, a pharyngeal mirror, the spray producers, and a tray containing bottles holding the medicaments, and a pair of air bulbs, unless a compressed air apparatus is used. This latter and the head reflector ought to be taken to the patient's residence at each visit. If a lamp is used as an illuminator, this will be found at the patient's house. The platinum illuminator should not be left with the patient, unless there is special necessity for it.

**734.** Every patient who is so ill that he will be for several weeks in bed, should be provided with a special nurse, whose duties should be detailed by the visiting physician. Great care should be given to the ventilation of the room. Earth spittoons should be used. The temperature should be maintained at a uniform degree.



## CHAPTER VII.

### PERCUSSION, AUSCULTATION AND MENSURATION OF THE LUNGS; AUSCULTATION OF THE VOICE, AND EXAMINATION OF THE HEART.

**735. EXPLORATION.** In 1865 I had the benefit of private instruction on this subject, from the late Prof. A. Flint, Sr., of New York. While with him I took very copious notes, which, with such addition as I have found by experience to be suited to the practice of the diseases of the throat, I will reproduce here. I know, from many years experience, that the information I received from him and here transcribed, is valuable, and can be relied upon. It is true that it is merely a synopsis of a very large subject, but, I think, none of the important points are left out.

**736. Preparation of the patient.** If the patient is a lady and is in my office I request her to undo the uppermost portion of her dress in front, and her corsets, also her chemise neck band, so that I can place the stethoscope on the bare chest. I do not deem it necessary to examine more of the chest than the parts above the mammae; these I never expose. If the patient is a male, I request him to unbutton his vest and suspenders, and pull up his shirt and undershirt under his chin, so as expose both clavicles. I use the double stethoscope known as Camman's. I do not use the pleximeter or rubber hammer; my fingers take their places.

**737.** If I examine the patient at their residence, I place him or her, as the case may be, in a horizontal position, with the head as low as is comfortable. If the head is so low that it will interfere with respiration, it will materially affect the sounds elicited during auscultation.



tion especially. In either case, whether the patient is at the office or residence, the examination is conducted in the same manner.

The head of the examiner should be nearly in the median line of the chest examined, for the reason that sounds that are identical in resonance from the right and left side of the lungs might appear to be of different pitch, if the ear of the examiner was nearer one side than the other.

**738. PERCUSSION. Normal vesicular resonance.** It is most important to be well acquainted with this resonance. The pitch of the normal resonance is low in quality; in comparing the resonance elicited from the right and the left lung, we will find that the pitch is lower on the left, and more marked in its vesicular character than it is on the right side of the chest.

**738 (a).** In **diminished resonance** or dullness the pitch is higher, therefore the resonance is less than in the normal lung. This condition denotes, as a rule, that the proportion of solids over air within the chest is greater than in health. In absence of resonance, or flatness, there is a complete abolition of sonorousness, incident to complete solidification of the lung.

**738 (b).** In **tympanic resonance** the sound elicited from the chest is devoid of the vesicular quality which we observe in the normal lung. We must keep in mind that this resonance may be greater or less than it is in health. It proceeds from air in the pleural sac, or in pulmonary cavities, or in dilated bronchial tubes contained in solidified lungs and also incident to tubercular excavations.

There are other qualities of resonance that may be elicited from diseased lungs, but they are of little value, because they indicate conditions that are demonstrated by the patient's physiognomy.

**739. AUSCULTATION.** As in percussion, so it is in auscultation. We should be well acquainted with the normal sounds that are obtained from the healthy lung. The respiratory sound obtained by auscultation from the healthy chest is called the normal vesicular murmur. The sound, or murmur produced by the act of inspiration is more or less intense, low in pitch, and has a peculiar quality which we distinguish as vesicular; the murmur with expiration is not always present, yet is not infrequently heard in the right summit of female chests; when this murmur is present, it is much shorter than the inspiratory murmur, less intense, and still lower in pitch; these characteristics, we must keep in mind, vary considerably within the limits of health in different persons. The murmur is more intense and the expiratory part of it is more vesicular and lower in pitch, in the left side than in the right side of the chest in front.

**740.** All deviations from this normal vesicular murmur denote



more or less disease in the lungs, the wider the difference the greater the disease, the less the difference the more important it is that we should know it, as this small difference indicates the commencement of disease in these important organs.

**741.** The **diminished vesicular murmur** is a weakened sound, but the distinctive characters of the vesicular quality are otherwise unaffected, the murmur is merely weakened. This murmur is found in diminution of the air cells in cases of chronic bronchitis and in emphysema following this disease in its still more chronic form.

**742.** An **exaggerated vesicular murmur** is occasioned when the respiratory functions of the opposite lung are involved in disease, as in cases of pleuritis with large effusions, and in pneumonia.

**743.** In **suppressed respiratory murmur**, there is an entire absence of this peculiar quality which we notice in the healthy lung, found in solidification of lung and in large pleuritic effusions.

**744.** In **bronchial or tubular respiration**, the inspiratory sound is devoid of the vesicular quality, and in its place we have a tubular quality, which is its distinguishing characteristic, the pitch is higher than the normal respiratory sound, the intensity variable according to the distance of the situation of the tube or tubes from the surface of the body.

**745.** The **expiratory sound** in this bronchial or tubular respiration, is as long or longer, and the pitch is higher and the intensity greater than in the inspiratory sound, this of course denotes more or less solidification of the lung.

**746.** Between the conditions of the normal lung described under the head of the normal vesicular murmur, and the solidified lung described under the head of the bronchial or tubal respiration, there is every degree of solidification. The physical sign which takes into consideration all of these different conditions is called **broncho-vesicular** respiration. In this vesicular quality, the inspiratory sound is more or less diminished, but not entirely wanting, as that condition would bring it under the head of bronchial or tubular respiration. The quality approaching the bronchial is in proportion as the vesicular quality is diminished, therefore the pitch is raised in proportion as the bronchial predominates over the vesicular quality. The expiratory sound is more or less prolonged, its intensity increased and its pitch raised in proportion as the inspiratory sound has less of the vesicular and more of the bronchial qualities in it.

**746 (a).** This **abnormal physical sign** is distinguished, as a name implies, by its combination in different proportions with the characteristics of the bronchial respiration and the normal vesicular murmur. Its character may approach, on the one hand, to the normal vesicular murmur, as in patients slightly affected, or on the other, to the bron-



real respiration, which denotes solidification of the lung. It is, therefore, one of the most important physical signs to study. This sign is known by various authors as *rude*, *rough*, and *hard* respiration.

**747.** An **inspiratory sound**, entirely wanting in the vesicular characteristic, not bronchial, but *hollow* blowing and lower in pitch than the bronchial, with an expiratory sound lower in pitch than the inspiratory, is called **cavernous respiration**, denoting the passage of air into and from a cavity with flabby walls. Therefore it is heard only in a circumscribed space, not infrequently surrounded by bronchial respiration.

There is a variety of **cavernous respiration** called **amphoric**, characterized by its musical sounds, instead of the blowing. Found generally in pneumo-thorax and perforation of the lungs, but sometimes in tubercular cavities, with rigid walls.

**748.** There are **adventitious sounds** caused by the action of air or fluids within the air vesicles and bronchial tubes, and by friction of the two pleural surfaces upon one another. The latter are called **friction sounds**, caused by movements in opposite directions of the costal and pulmonary pleural surfaces with inspiration and expiration. It appears near to the ear, conveying to the mind the idea of friction of roughened surfaces, the sound is more or less intense and dry. Found in pleuritis, especially after the absorption of the fluid effusion. There is another sound—but not produced by friction—which is a series of tinkling sounds, with one or both acts of respiration, also produced by coughing and speaking, called **metallic tinkling**. This denotes a cavity of considerable size, having air and fluid in it. This is found in pneumo-hydro thorax; sometimes in large tuberculous excavations. The râles may be so fine as hardly to be audible, or so coarse as to resemble gurgling. Between these two extremes is every degree of gradation. The **crepitant râle** is a fine, dry, crackling sound, heard only in the act of inspiration. It is an almost unfailing sign of pneumonia, and is heard in the first stage of the disease; found also in œdema of the lungs and in hemoptysis. The **ra** râle is produced within the air vesicles.

**749.** The **subcrepitant râle** is a fine, moist, bubbling sound heard in one or both acts of respiration; conveying the idea of the bursting of small bubbles, yet sometimes intermingled with the fine, dry, or crepitant râle. This râle is produced within the small bronchial tubes. Heard in the last stage of pneumonia, capillary bronchitis, hemoptysis, pulmonary apoplexy and œdema of the lungs.

**750.** The bubbling sounds due to the presence of mucus and other liquid in the larger sized bronchial tubes than those in which the subcrepitant râle is produced, are called **Moist Bronchial**, or



**Mucous Rales.** They may be coarse or fine, according to the size of the bronchial tubes in which they are produced, and are generally low in pitch. Heard in affections giving rise to liquid in the bronchial tubes and in bronchitis.

**751. The Dry Bronchial or Tubular and Sonorous Rales** are free from this bubbling quality, and are therefore dry and frequently musical, caused by the passage of air through narrow or contracted bronchial tubes. If the contraction is great, then the pitch of the sound is high. It is sibilant or whistling; if not much contracted, then the pitch is low, and the sound promulgated is sonorous or snorting. These sounds are incident to asthma and to bronchitis.

There is a moist bubbling or, more properly, gurgling sound produced by a liquid within the cavity. Heard in tubercular excavations. Its situation is circumscribed.

**752. AUSCULTATION OF THE VOICE.** In auscultation of the voice, of course the standard for comparison is the **normal vocal resonance**, which is a diffused, distant resonating of the voice with more or less tremitus or vibration of the walls of the chest, varying in degree in different healthy persons. In comparing the two sides of the chest it is always louder on the right than on the left side. In disease there are various modifications of this normal vocal resonance.

**752 (a).** In **bronchophony the voice** is concentrated, more or less intense, raised in pitch and seems near the ear. In whispering it has a blowing sound, raised in pitch, nearer the ear, and intense; denoting complete or considerable solidification of the lung. It is found with bronchial respiration.

**753.** When the **resonance of the voice is diffused and distant**, as in health, with only its intensity abnormally increased, it is called **exaggerated vocal resonance**, and denotes a degree of solidification not quite sufficient to produce the characteristics of bronchophony. This physical sign is present with bronco-viscous respiration. **Ægophony** is a modification of bronchophony, and consists in the tremulousness of the sound resembling the bleating of a goat; sometimes heard in pleuritis and pneumonia. The value of this sign has been over estimated by Laennec as diagnostic of pleuritis. There is another variety of bronchophony which is rare. It is called **Pectoriloquy**. The articulate words are transmitted directly to the ear.

**754.** The **cavernous whisper** is a low pitched, blowing sound, proceeding from a tuberculous excavation. The amphonic sound may accompany or follow the loud voice or whispered words. It is a musical sound like that produced by blowing into an empty bottle; heard especially in pneumo-thorax, and occasionally in tuberculous cavities.

**755. Diagnostic Signs of Lung Affections.** I will



now give some of the preliminary affections that physicians, whose professional labors are limited to the practice of the nose, throat and ears may be called upon to treat; and will mention the diagnostic signs obtained by percussion and auscultation of the lungs and auscultation of the voice. In doing this I will again repeat most of the physical signs that have already been given.

**756. Bronchitis affecting the larger tubes.** This is the most common affection of the lower air passages that will be met in the office. The following are the physical signs that indicate this condition: normal vesicular resonance on percussion, sibilant or sonorous râles, or both in early stage on both sides of the chest; feebleness of the respiratory murmur; temporary suppression of murmur over portions of the chest. In the course of the disease, mucous râles, coarse and fine, will be heard on both sides of the chest. The râles will be variable, not always present, coming and going and changing their situation. The vocal resonance will be normal.

**757. Capillary Bronchitis.** This is probably the next most common complaint; its signs are: normal vesicular resonance on percussion, sobrorepitant râles on both sides of the chest, weakened or suppressed respiratory murmur. Vocal resonance normal.

**758. Pulmonary Emphysema.** This condition of the air passages is frequently seen in office practice. The following is a synopsis of its indications: vesicular tympanitic resonance on percussion, generally most marked at the left summit in front. Respiratory murmur feeble or suppressed. The inspiratory sound shortened. The expiratory sound frequently prolonged, but not raised in pitch. Sibilant and sonorous râles frequently present. The superior and middle thirds of the chest in front, bulging, and the lower part contracted. Marked and characteristic deformity of chest in some cases. The vocal resonance is not affected.

**759. ASTHMA.** The physician will almost invariably be engaged to examine his patient in the office, even if he knows he cannot do this satisfactorily. Its signs are few and well marked, they are: resonance on percussion, normal or increased; sibilant and sonorous râles diffused over the whole of the chest. They are often loud enough to be heard at a distance. Vocal resonance normal.

**760. PNEUMONIA.** It is not a very uncommon occurrence for a patient who has been suffering from severe cold in the nasal passages and throat, to be taken down with a pneumonia, and if their cough has been prolonged sufficiently to cause pain in the chest before the pneumonia set in, the additional pain will at once fill the minds of the patient and friends with consternation, and the physician who treats the throat and head will be called upon at once to make a careful examination of the chest. This he should do, and if it proves



to be a severe case, recommend a physician who will take care of the case with him, as he will not have time, in connection with his office practice, to visit at all hours of day and night. The following are the signs: in the first stage slight or moderate dullness over the affected lobe, and frequently, but not invariably, the crepitant râle, the latter being almost pathognomonic. In the second stage, marked dullness or flatness over a space corresponding to that occupied by the affected lobe or lobes. Vesiculo-tympanic resonance over the upper lobe, if the lower lobe be alone affected, and over the lower lobe if the upper lobe be alone affected. The relation of resonance and dullness or flatness, not changing with change of position in the patient. Bronchial resonance in this stage and bronchophony with the loud voice, and whispering bronchophony. In some cases there is persistence of the crepitant râle. In the stage of purulent infiltration, dullness or flatness continues with the mucous râles. During resolution, progressive diminution of dullness, the bronchial respiration gives place to the broncho-vesicular respiration, and the latter approximates and at length eventuates in the normal vesicular respiration. During this period there is frequently a return of the crepitant or subcrepitant râle. Bronchophony is heard during resolution, giving place to exaggerated resonance, and the latter diminishes and ends in the normal vocal resonance.

**761. Collapse of Pulmonary Lobules in connection with Bronchitis in Children; heretofore called Lobular Pneumonia.** This complaint so frequently follows a protracted cold, that the physical signs of its presence should be given here. They are as follows: dullness on percussion greater or less, and more or less diffused, this is oftenest observed on the posterior portion of the chest on both sides, with diminution of respiratory murmur or feeble bronchial respiration. Mucous or subcrepitant râles on both sides.

**762. OTHER LUNG AFFECTIONS.** As many patients suffering from the following pulmonary complaints are greatly troubled with diseases of the nasal passages, or throat, or both, the physician who devotes his time to practice of these latter diseases may be called upon to give relief; for this reason I think it well to mention the principal signs that diagnosticate them.

**763. Pleurisy with Effusion and Empyema.** If the pleural sac be filled either with lympho-serous aqua or pus, there is universal flatness on percussion over the affected side. Generally absent of respiratory sound except over the compressed lung at the summit, and here, bronchial respiration. Enlarged dimensions of the affected side, if the liquid be sufficient to dilate the chest, as shown by measurement or the eye. Deficient respiratory movements or immobility. The in-



intercostal spaces on a level with the ribs, and sometimes bulging. Dilation of the heart, its site being shown by the impulse or sounds. Normal vocal resonance diminished or suppressed. Vocal fremitus wanting. Exceptionally, the bronchial respiration emanating from the compressed lung is more or less diffused, and may extend over the whole of the affected side.

If the chest be partially filled, flatness or dullness on percussion from the base of chest, extending upward to a horizontal line denoting the level of the liquid when the patient is sitting or standing. Resonance extending below this line, in front, in some cases, when the patient lies on the back, owing to a change of level of the liquid. Vesiculo-tympanic resonance over the lung above the level of the liquid. Diminution or absence of respiratory sound below the level of the liquid. Above the liquid the respiration is broncho-vesicular, approaching the bronchial, sometimes near the liquid. Vocal resonance and fremitus diminished or wanting below the level of the liquid, and both may be exaggerated above the liquid. Diminution of intercostal depressions may be apparent when the chest is partially filled. Exaggerated respiration on the healthy side when the chest is partially, and still more when it is completely filled. Pleural friction sound sometimes prior to and with liquid effusion; frequently during and after absorption of liquid. A characteristic contraction of the chest on one side follows chronic pleurisy with considerable effusion.

**764 Pneumohydro-thorax.** The diagnostic signs are: tympanic resonance extending over the whole of the affected side, or a certain distance from the summit, when the patient is sitting or standing; and dullness or flatness below, extending to the base. The relation of the dullness or flatness and the tympanic resonance changing when the patient lies on his back, owing to change of level of the liquid within the thorax. The tympanic resonance is sometimes amphoric. Amphoric respiration and voice frequently present also metallic tinkling. Splashing sound on succussion, and this sound frequently amphoric. Dilation of the affected side in certain cases, with deficient respiratory motion, and abolition of intercostal depression. In most cases the heart is removed from its normal situation.

**765. Hydro-thorax or Dropsical Pleural Effusion.** The features of this complaint are so manifest that but few need be given. The signs denoting presence of liquid in both pleural sacs; the amount of fluid often greater in one side. The evidence of liquid afforded by change of level with the change of position of the patient; this is almost invariably present.

**766. Pulmonary Oedema.** Dullness or flatness on percussion, more or less diffused over the posterior surface of the chest, usually



on both sides. Subcrepitant, sometimes intermingled with crepitant râles. Absence of respiratory murmur, or feeble broncho-vesicular respiration. No change as regards the situation of, or space over which the dulness extends, with change of position of the patient.

**767. Pulmonary Gangrene.** Dulness or flatness on percussion over a space more or less circumscribed, oftenest over the scapula. Absence of respiration within this area, or bronchial respiration. Mucous or subcrepitant râles within the area of dulness or flatness and its neighborhood. Cavernous signs may be present after the sloughing away of a circumscribed portion of lung. The signs of pneumo-hydrothorax become developed if perforation of the lung takes place.

**768. Pulmonary Apoplexy.** Dulness or flatness on percussion within a circumscribed space or circumscribed spaces. Absence of respiratory murmur within the limits of the extravasations or bronchial respiration. Mucous or subcrepitant râles.

**769. Carcinoma of Lung.** The signs of solidification greater or less in degree, and more or less diffused. Sometimes contraction of one side and lessened respiratory movement.

**770. EXAMINATION OF THE HEART.** If the subjective symptoms of the heart are such as to make it desirable to examine it, this should be done at the patient's residence, so as to avoid over action by the patients going to the physician's office; or the patient may be directed to rest for half an hour, so that the excited action of the heart may pass off.

The chest should be sufficiently exposed to allow a free inspection as well as due application of the stethoscope to the surface of the body. It is well to examine, first in a sitting posture, then in the horizontal position. Every remark that might alarm the patient should be avoided. Three or four hours after eating, in the forenoon or in the afternoon, are the best times to make the examination. If the patient's bowels are constipated and the kidneys sluggish in action, a laxative diuretic should be given the day before the examination takes place.

I have given the heart affections as they have occurred most frequently in my practice.

**771. Aortic Obstructive Lesions.** The signs are: an organic endocardial murmur accompanying and following the first sound of the heart (systolic), loudest at, or limited to, the base of the organ; generally propagated into the carotid arteries; its maximum of intensity in the second intercostal space on the right side near the sternum, provided the normal relation of the aorta to the chest walls be preserved. The aortic, second sound of the heart, as heard in the sit-



uation just designated, will be weakened or lost, if the aortic valves are damaged.

An aortic direct murmur may be inorganic or anæmic. This is to be inferred when the murmur is variable in its intensity, or intermittent, unaccompanied by the weakening of the aortic second sound, the heart not enlarged and murmurs heard in the large arteries and in the veins of the neck.

**772. Aortic Regurgitant Lesions.** An endocardial murmur accompanying and following the second sound of the heart (diastolic), loudest just below the base of the heart on the left side of, or over the sternum; propagated thence downward toward the ensiform cartilage. The aortic second sound weakened in proportion as the aortic valves are defective. This murmur is frequently conjoined with the aortic direct murmur.

**773. Mitral Regurgitant Lesions.** An endocardial murmur accompanying and following the first sound of the heart (systolic); loudest at or limited to the apex of the organ; extending more or less to the left of the apex laterally around the chest, and heard at the lower angle of the scapula; not propagated into the carotids. The aortic second sound of the heart weakened in proportion to the amount of regurgitation, and the pulmonic second sound (heard in the left second intercostal space near the sternum) intensified in proportion to the amount of hypertrophy of the right ventricle induced by the mitral lesions.

**774. Mitral Obstructive Lesions.** An endocardial murmur not connected with the second sound of the heart, but preceding the first sound (pre-systolic), and abruptly arrested at the occurrence of the first sound; the murmur limited to a circumscribed space around the apex of the organ; the character frequently peculiar, resembling the sound made by throwing the lips or tongue into vibration with the breath of expiration. The pulmonic second sound of the heart intensified, if the mitral regurgitant lesions have led to hypertrophy of the right ventricle. This murmur is frequently associated with the aortic regurgitant. It does not denote lesions in all cases, when it is associated with aortic regurgitant lesion.

**775. Tricuspid Regurgitation.** An endocardial murmur with the first sound of the heart (systolic), heard within a circumscribed area at the lower part of the sternum. Frequently, if not generally, associated with pulsation or undulation in the jugular veins.

**776. Lesions at Pulmonic Orifice.** An endocardial organic murmur with the first sound of the heart (systolic), at the base of the organ, in the left second intercostal space; not propagated into the carotids.



**777. Endocarditis in cases of Articular Rheumatism.** An endocardial murmur, loudest at the apex of the heart, i. e., a mitral systolic murmur, developed (i. e., not having existed previously) in connection with articular rheumatism, and attended by more or less action of the heart.

**778. Pericarditis.** A pericardial friction murmur (exocardial), distinguished from an endocardial murmur by the following points: Conveying the idea of rubbing or friction; apparently superficial; usually two sounds for each beat of the heart; varying in intensity and character during auscultation; its relation to the heart sounds not definite, or the rhythm irregular; not propagated much, if at all, beyond the limits of the heart, and frequently limited to the superficial cardiac space; intensified notably by firm pressure with the stethoscope; disappearing, in some cases, during the stage of pericardial effusion, and finally ceasing after pericardial adhesions have taken place. Generally associated with endocardial murmur or murmurs.

The existence and amount of pericardial effusions are shown by increased dulness or flatness in the pericardial region, within a triangular or pyriform space, corresponding to the size and figure of the distended pericardial sac; the base situated a little below the level of the apex of the heart, and the summit extended toward or quite to the sternal notch; the præcordia sometimes projecting, and the intercostal depressions pushed out; the impulse of the heart lost, or, if appreciable, raised to the fourth or third intercostal space; the heart sounds weakened and distant; the first sound short and valvular like the second sound.

In chronic pericarditis, with large effusions, the dilatation of the pericardial sac is shown by dulness or flatness extending laterally, more or less, from the præcordia on both sides of the chest, together with the other signs just mentioned.

**779. Hypertrophy of Heart or Enlargement with Predominant Hypertrophy.** The apex beat lowered from the fifth intercostal space to the sixth, seventh or eighth, according to the amount of enlargement, and removed to the left of its normal situation one, two or three inches. The apex beat in some cases, notably strong, but in other cases weak, in consequence of the change in form of the heart. Impulses in the intercostal spaces above the apex beat and these notably strong. Heaving movement of the whole of the præcordia, with more or less power. Enlargement of the superficial cardiac space, as shown by superficial percussion, and the degree of dulness within this space increased. The left margin of the heart extending without the left nipple, as determinable by deep percussion. The intensity, length and booming quality of the first sound of the heart over the apex or body of the organ is increased.



If the hypertrophic enlargement exists without valvular lesions (which is rare), there is absence of organic murmur.

**780. Enlargement of the heart with Predominant Dilation.** The fact of enlargement and its degree determined by the same signs as when the enlargement is due to predominant hypertrophy. The predominance of dilation shown by feebleness of the apex beat and of other impulses; absence of heaving of the præcordia, and by the diminished intensity of the first sound, and its being short and valvular like the second sound. Absence of organic murmur if the valvular lesion do not co-exist, which is rare.

**781. Fatty degeneration of the heart.** Persisting feebleness of the apex beat or other impulses; weakness of the first sound, with shortening and valvular quality, like the second sound. These signs are not referable to dilation.

**782. Functional disorder of the heart.** Absence of organic murmur and of enlargement and the heart sounds natural in all respects save in intensity.



### SECTION III.

Electricity is so important an adjuvant to medical practice, that no work on the treatment of the diseases of the mucous membrane of the air passages, in which the greater portion of the nervous system is involved, could make any pretensions to completeness, without giving at least some details as to its uses. That electricity is a force that should be utilized in the relief of diseased action, is acknowledged by every educated physician. If this agent has a real value, no physician should ignore it, not only this; but the time has come when he must employ it, if he desires to keep abreast with the onward march of medicine.

In the preparation of this chapter I have taken it for granted that the reader is fully acquainted with the subject as given in many of the works on medical electricity. I have dwelt on the local and general application, as required in the treatment of the diseases of the nervous system, that are sequences of rhinal inflammation.



## CHAPTER VIII.

### ELECTRICAL APPARATUSES.

**783. BATTERIES.** Leclanche cells are the most convenient and constant, requiring the least attention, and having the advantage of always being ready for use. Fifty cells will be all that is required for electrolysis, while from fifteen to thirty-five cells will be sufficient for **Central Galvanization**. These cells should be so arranged that one or any number may be made to enter into the circuit.

**784. Induced current.** Any one of the many induction apparatuses will serve the purpose of applying the faradic current. I use a large Kidder battery, which can be easily controlled, but it has no superiority over many other batteries.

**785. Electrodes.** A side sponge electrode will be required to apply the electricity under the loosened clothes, as on the epigastrium of a lady. Her corsets are unhooked at the top and the moist sponge is slipped down next to the skin on the epigastrium. Figure 132 illus-



Figure 132. Side Sponge Electrode.

trates the side sponge electrode. I always cover the sponge with a small handkerchief or napkin, as it would be uncleanly to apply the same sponge to every lady's chest. In the case of men, I have them unbutton their vest and pants, and draw up their shirt and undershirt,



until I can apply the side sponge electrode to the epigastrium. To this electrode I usually apply the **cathode** or negative pole.

**786.** For the **anode**, or positive pole; I use a common sponge holder, similar to that illustrated in figure 133. A handkerchief or napkin should cover this sponge also.



Figure 133. Sponge Holder.

This pole is usually applied over the seventh cervical vertebra, and as described in topic **797**.

**787. Nasal electrode.** This is best made by placing a piece of absorbent cotton in the nasal passage, and then applying the pole to it. It is not necessary to moisten the cotton, as it will absorb sufficient moisture from the passage to make it a good conductor. If the nasal passage is quite sensitive, as it frequently is in hyperæsthesia, I saturate the cotton with vaseline. Vaseline is a good conductor.

**788. Pharyngo-nasal electrode.** Figure 134 illus-



Figure 134. Pharyngo-nasal Electrode.

trates this instrument. The applied extremity should be wrapped with a little absorbent cotton and smeared with vaseline, then passed up behind the soft palate. The same instrument will answer for a **pharyngeal and laryngeal electrode**.

**789.** Figure 135 illustrates an **ear electrode**. I frequently apply a small metallic electrode to the tragus



Figure 135. Ear Electrode.

This manner of application is beneficial, if there is any



tendency to disability of the muscles of the face.

**790.** A metallic brush is frequently useful in cases affected with anæsthesia of the surface of any part of the body. Figure 136 represents a convenient form.



Figure 136. Metallic Brush.

**791.** Atkinson's Tæppler electric machine, is an excellent one for applying statical electricity. Figure 137 is an illustration of this apparatus.

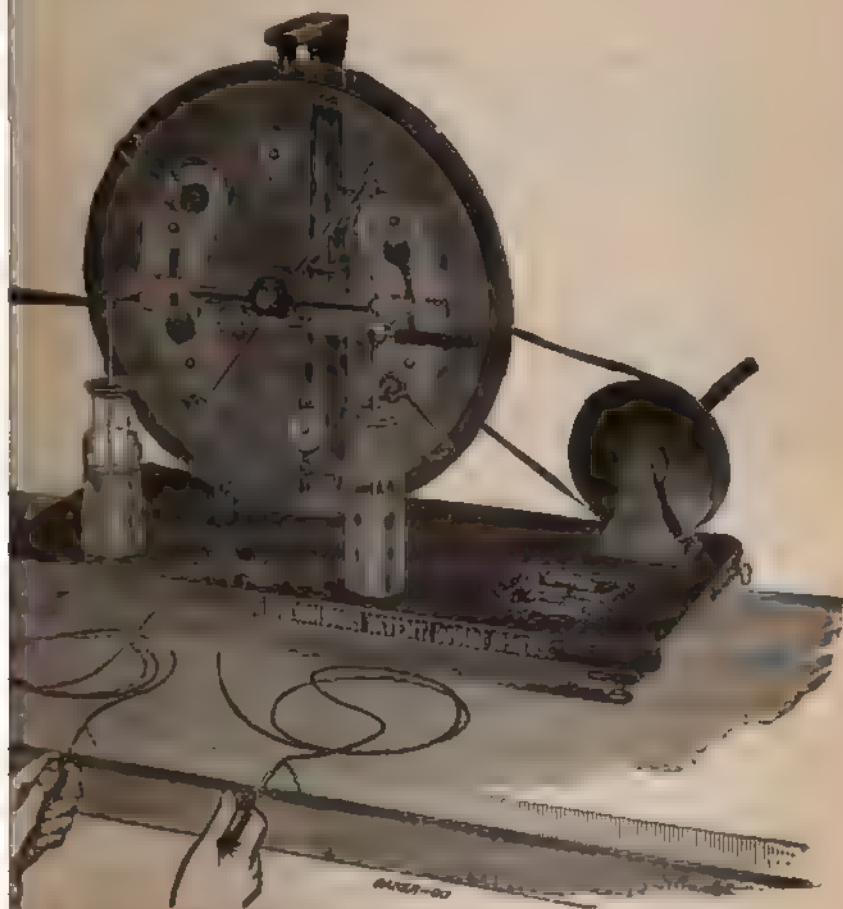


Figure 137. The Atkinson-Tæppler Electric Machine.



## CHAPTER IX.

### THE APPLICATION OF ELECTRICITY.

**792. Central Galvanization.** The following is taken from Beard & Rockwell's *Medical and Surgical Electricity*. I have followed the method and manner of applying electricity as given in these quotations, ever since their work has been in print. I use Leclanche cells, and have them so connected to my operating table that I can throw from five to fifty cells into the circuit. The current passes through a water rheostat, and is always so modified, as to be made pleasant for the patient. I use a current interrupter also, which is beneficial in many cases.

**793.** "*The object in central galvanisation is to bring the whole central nervous system—the brain, sympathetic and spinal cords—as well as the pneumogastric and depressor nerves, under the influence of the galvanic current. One pole (usually the negative) is placed at the epigastrium, while the other is passed over the forehead and top of the head, along the inner borders of the sterno-cleido-mastoid muscles, from the mastoid fossa to the sternum, at the nape of the neck, and down the entire length of the spine.*"

"A female patient is taken in order to show that this method is its entirety requires little or no exposure.

**794. "Details of the applications.** We do not always make the applications all over the head, but merely on the forehead, gently passing the electrode from one side to the other; then baptize the patient in the *cranial center*, at the top of the head, and rest the pole there for about one minute, and sometimes longer. To the head we apply from two to six or eight cells—for patients vary in their susceptibility—beginning with a weak current, and gradually increasing until a sour or metallic taste is perceived in the mouth. The *cranial* ce



627—the summit between the ears—we regard as the most important region of the head in all electrical applications, and especially in central galvanization. A current passing from that point to the epigastrium, traverses the center of life—if life has any centre—and affects the sympathetic and the roots of the facial nerves. The sensation produced by this application is different from that of any other application to the head, and is something indefinable.

795. "An application to this point for one or two minutes is usually as much galvanization as the brain needs. In exceptional cases where the hair is thin, or the head is bald, we make the application all over the surface, back and front. In applications to the head, care should be taken to avoid sudden interruptions, or shocks that cause dizziness; the flashes of light before the eyes are of little account, but nothing is gained by producing them, and they are annoying to the patient.

796. "The electrode is then passed down the inner border of the sternocleidomastoid muscle, from the auriculo-maxillary fossa to the nipple, for the purpose of affecting the pneumogastric and sympathetic. We usually make the application on both sides, and from one to five minutes duration.

797. "In galvanizing the spine, especial attention is given to the *second spinal centre*, below the first and seventh cervical vertebrae, which is to the spine what the cervical centre is to the brain. The cervical sympathetic and pneumogastric, as well as the spinal cord, are affected by the current. The electrode should also be passed over the entire length of the cord by *labile* applications up and down. The back is not usually sensitive, and strong currents, from ten of the dry cells, can be borne without any more discomfort than a burning or pricking sensation beneath both electrodes.

798. "The back may be treated from three to six minutes, and the whole length of the *séance* of central galvanization ranges from five to fifteen minutes.

799. "**Preparation of the patient.** All the preparation a male patient requires for central galvanization is to unbutton and loosen the collar, remove the coat and vest, and slip up the whole clothing, so that free access can be made to the spine.

800. "A female patient may remove her corsets and slip up her underclothing, or merely loosen the clothing at the neck and waist, so as to make room for an electrode to be passed down to the epigastrium, and for a spinal electrode to be passed up and down the back.

801. "The method of central galvanization is based on these *four* assumptions, all of which seem to us justifiable.

"*First.* That in a very large number of diseases, and especially



of the so-called functional diseases, the pathology is not exclusively confined to any region of the brain, or sympathetic, or spinal cord, but the whole central nervous system is invaded by a condition of exhaustion and irritability. We believe this to be true not only of hysteria, chorea, and of many affections allied to them, but of certain states of neuralgia, and a number of diseases of the skin. It is possible, furthermore that some diseases that are not now regarded as in any respect of a nervous character may in the future be shown to depend so closely on the nervous system that they can be most successfully treated, not through their varying and local manifestations, but through the brain, spinal cord, and sympathetic. That certain diseases, not primarily nervous, do so affect the nervous system that they need to be treated, in part at least, by remedies that act on the nerves, will be conceded, I suppose, without question.

"*Second.* That a large proportion of the most frequent and distressing chronic diseases, as hysteria, hypochondria, neurasthenia, chorea, epilepsy, nervous dyspepsia, neuralgia, and many forms of insanity, are so obscure and subtle in their pathology that it is impossible to determine the precise seat of the disease in any given case, even where some local pathological condition may exist, and consequently we can never know just where the current should be localized.

"*Third.* That the nutrition of the central nervous system will be improved by passing through it a mild galvanic current.

"That in the great majority of cases of so-called functional nervous disease, and in many of the cases of special structural lesions, nerve-tonics are indicated, will be questioned by no one. It is also coming to be pretty generally admitted that electricity is something more than a stimulant—that it is a tonic with a powerful sedative influence. Still further, it is admitted that the sedative and tonic effects of electricity can be obtained by passing the current, with little or no interruption, through any part, the nutrition of which needs to be improved.

"*Fourth.* It is impossible to exclusively localize the current in the cervical sympathetic, hence it is certain that the good results that in some instances follow the galvanization through the neck are due to the effect of the current on the spinal cord or pneumogastric, as well as to the cervical ganglia of the sympathetic. That the beneficial effects of galvanizing the neck in cases of nausea, dyspepsia, and gastralgia, are due in part if not entirely to the effect of the current on the pneumogastric, is more than probable.

802. "The positive pole (anode) is applied over the head, neck and spine, because it is less irritating than the negative, and tends to



diminish irritability. The majority of the cases for which central galvanization is used are in a condition of abnormal irritability, and need the calming effects of anaclectrotonos rather than the irritating effects of catalectrotonos. To this rule there are individual exceptions: there are cases that appear to be benefited more by the negative than the positive pole.

803. "The negative pole (cathode) is placed at the epigastrium, because the epigastrium is a good, indifferent point, that will bear well the irritating effect of catalectrotonos. In order to avoid over-irritating the stomach and the pneumogastric nerve, it is well, in very sensitive patients, and when long applications are used, to change the position of the negative electrode by moving up and down between the sternum and the abdomen.

804. "The positive and negative modifications that take place at the breaking of the galvanic current, in the region of the anode and the cathode, probably complicate somewhat the effects of treatment—are, indeed, factors of some importance in producing the effects, and not unlikely explain, in part, the disagreeable results that come from too frequently interrupting the current when treating nerve centres. The positive and negative modifications can, however, be mostly avoided by using a rheostat of some kind, and gradually reducing the strength of the current to a minimum before the electrodes are removed.

805. "*Central Galvanization compared with Localized Galvanization of the nerve centres.*

"We claim for central galvanization a distinct and separate position among the different methods of using electricity in medicine. The applications of the galvanic current to the head, the neck, and the spine, which have been variously used by electro-therapeutists since the time of Remak, are simply forms of localized electrization, since the object aimed at in all of them is to localize the current, so far as possible, in the brain or some portion of it, in the cervical ganglia of the sympathetic, or in the spinal cord. Then, again, in all these forms of localized galvanization of the nerve-centres, the poles are placed near each other over the part to be affected, and the peculiar action of both poles is felt, so far as is possible by external application, in the organ that is treated.

806. "In galvanizing the head, for example, the poles are applied behind the ears, or in front of them, or one is placed on the forehead, and the other on the occiput, or at the nape of the neck. In galvanizing the cervical ganglia of the sympathetic, one pole is placed on the auriculo-maxillary fossa, or along the inner border of the sterno-mastoideus muscle, while the other is applied at the back of the



nook. In galvanizing the spine, one pole is placed at the upper or lower part, while the other is passed up and down the entire length, or kept in one place, or both may be moved up and down the entire length of cord, or confined to any portion, as is desired.

**807.** "But in general galvanization the electrodes are so placed that the whole central nervous system is brought under the influence of one pole (usually the positive) of the galvanic current at one sitting, and without any important change of position of the negative pole. Besides the central nervous system, the pneumogastric and the stomach itself are also affected; in a word, the great centres of life, of health and of disease.

**808.** "Comparing central galvanization with localized galvanization of the nerve-centres, by the effects, we find differences of a most marked and interesting character exist. The ordinary methods of galvanizing the cervical sympathetic, the brain, or the spine, do not either singly or in combination, produce the powerful tonic results that are frequently obtained by central galvanization. Sedative and tonic effects are unquestionably produced by these local methods, but they are frequently inferior in quality and degree to those derived from central galvanization when properly administered. This conclusion is derived from actual trial and observation of cases. Neither the temporary nor the permanent effects of localized galvanization of the brain, of the cervical sympathetic and pneumogastric, or the spine, are as satisfactory in many cases, even when they are successively used at the same sitting and with the same time and strength of current, as central galvanization.

**809.** "Still further, experience teaches that the method of central galvanization, in its completeness, is more serviceable than partial or incomplete applications of it. Placing the negative pole on the epigastrium, and the other on the spine, will not accomplish the full effects of central galvanization, although so far as it goes it is a good method, and produces sedative and tonic effects. To confine the attention to the head and neck alone, also, is not sufficient.

**810.** "*Compared with General Faradization.*—Comparing central galvanization with general faradization, we find most important differences. In the one only the galvanic, in the other, only the faradic current is used.

**811.** "In general faradization the application is made not only over the central nervous system, but over the entire trunk, and especial attention is given to the muscles of the abdomen and extremities. In central galvanization the chief aim is to affect the central nervous system; in general faradization the chief aim is to affect the muscular system, although the nervous system, central and peripheral, is affected both directly and reflexly.



**812.** "Comparing the effects of central galvanization with those of general faradization, we find that both are powerful tonics, and are adapted for conditions of debility, by whatever names they may be known. For some cases, and particularly of cases associated with great muscular debility, general faradization is more effective than central galvanization. On the other hand, in cases where simply exhaustion of the nerve-centres is the leading condition—as hysteria, chorea, and so forth—central galvanization is oftentimes far superior to general faradization.

**813.** *Central Galvanization Alternated with General Faradization.* Some of the best results that we have yet seen have been secured by combining or by alternating the two methods.

**814.** "Sometimes, after general faradization has done all that it is capable of, central galvanization, rightly used, helps to lift the patient still higher. In cases where we are not experimenting, and seek only the best good of the patient in the shortest time possible, we use in succession, or alternation, and with changes and modifications, all the principal methods—local galvanization of the brain, of the cervical sympathetic and spine, general faradization and central galvanization. This course is found to be oftentimes justified by the results. The improvement is more positive and more permanent than when a single method is used exclusively.

**815.** "Some cases we treat one week by general faradization, the next week by central galvanization; sometimes we alternate the methods from day to day.

**816.** "There are, however, cases not a few, where all forms of faradization, and where local galvanization of the nerve-centres irritates rather than benefits, but in which, under the method of central galvanization, there is sure and constant improvement.

**817.** "In beginning to treat a patient by central galvanization, we should use very mild, scarcely perceptible currents, particularly around the head and neck and even on the cervical spine, and great pains should be taken to avoid breaking the current, and the application should be of only a few moments duration. Taking these precautions has now become with us a mere matter of routine and we are every day accustomed to treat the most sensitive and delicate patients—cases of hysteria, nervous exhaustion, hypochondriasis, and allied affections—cases which are sufficiently familiar to all American physicians, and with sedative and tonic effects that are not obtainable by other methods."

**818.** *Applications to the nasal cavities.* This application is made, as described in topic 737, for ex-



cessive dryness of the nasal passages, and to alleviate pain. It is seldom that this agent can be used in the acute stage of pruritic rhinitis (hay-fever). It has been successfully applied for anosmia and hyperosmia. If the application spoken of above, does not relieve after a few sittings, it indicates that the local inflammation is not sufficiently reduced by local and constitutional treatment. The galvanic current is the only kind of electricity that can be borne in these passages. The length of the application should not exceed two minutes at most. Every disagreeable sensation should be avoided. The positive pole is alone applied to those surfaces.

**819. Application to the pharyngo-nasal cavity, the pharynx and larynx.** The application of the galvanic current may be applied to these cavities, if used with great caution and a very weak current. The mucous membrane of the upper air passages will not tolerate an interrupted current. Where a lack of secretion is one of the abnormal conditions, a weak current will be beneficial after a sufficient number of local treatments have been employed to free the surface of the catarrhal flow. Where there is a paresis of the soft palate or uvula, a weak current, reversed once in 15 seconds, will prove beneficial. In cases of aphonia, the pole—the positive—should be slowly passed from the basisphenoid to the arytenoid processes. An application of *one minute's* duration is sufficient. I seldom make application to the inside of the larynx, for the reason that most of the diseases of this organ depend upon disease of the pharyngo-nasal cavity and the pharynx.

**820. Applications to the ear.** I spent about six years (from 1871 to 1876) in the daily study of the effects of the galvanic current on the ear, as detailed by Brenner. At the time, I accepted the idea given by a large number of European physicians, that many diseases of the ear were due, primarily, to the diseased condition of the auditory or other nerves, and that electricity was the remedy for all such complaints. After numberless disappoint-



ments during the six years, I found that these nervous complaints were all secondary to an inflammatory condition; that until the primary cause of these nervous conditions were removed, or materially lessened, the nerve troubles themselves would resist treatment, and that electricity frequently, instead of assisting the recovery, really helped to maintain the complaint by inducing irritation. My hopes were occasionally raised during these six years, by this agent producing effects that were truly surprising. Without at first noticing that these successful applications were due to the absence or abeyance of the pre-causative inflammation, I found that electricity was more beneficial after the patient began to recover from his catarrhal inflammation; and that before this recovery, the electricity was very frequently nugatory, and sometimes harmful.

**821. The methods of application.** The anode, positive pole, may be applied to the tragus. A scarcely perceptible current should be used. I determine the strength by placing the electrode on my tongue. In every instance the rheostat (a current controller) should be raised to the highest point. After the electrode is on the tragus, and the cathode is in the hand of the patient that is opposite the ear being treated, slowly push the stem of the rheostat downward, once in about every five seconds, drawing it a little backward, until the patient says he is conscious of the current of electricity, then slowly withdraw the stem of the rheostat again. The time taken for this application varies from fifteen seconds to one and a half minutes.

In cases treated for **tinnitus**, apply the ear electrode into the auditory meatus, having the patient hold the ear treated upward, pour a little warm water into the ear and then make the connection with the battery, using the same precaution as mentioned above. As soon as the patient says that the ear sounds are lessened in severity, slowly raise the stem of the rheostat so as to



avoid producing a re-action that usually occurs on opening the circuit. Do not make a second application, if the first application has produced the least good effect. The length of time should not exceed **one-half to three-quarters of a minute.**

Central galvanizations should be made at each of these sittings.

**822. Application of statical electricity.** This kind of electricity produces effect of a positive and curative nature. This can be obtained either by insulation, or by sparks. It is doubted that this form of electricity is equal to general faradization or central galvanization, yet as an adjuvant or supplement it is invaluable. Frequently a remedy, which may at first act well, will prove inefficacious, making a change necessary to some other remedy of the same class. So it frequently is with the various forms of electricity. I have seen cases, after improving to a certain degree, make a stand, and unless a change was made, would actually retrogress; but by applying a different form of electricity again progressed to recovery; a new impulse being given by the change. Showing that the one kind of electricity supplements and re-enforces the other. While, as a general thing, neuralgia is more under the power of galvanism, yet static electricity will frequently assist to make the improvement by the former more permanent.

I have not the space to dwell at length on electricity. In fact, I only wish to merely call attention to it. The methods of its application, and the uses to which it should be put, the reader may inform himself in works devoted to it especially. I will say, before concluding this interesting subject, that those who use electricity should bear in mind, that it will not cure everything, that there are many cases in which, instead of affording amelioration, will actually prove injurious, for the reason that the primary cause of the whole disease is not removed; also, that no one should attempt to make an application, who has not thoroughly studied the subject.



## PART III.

### THE THERAPEUTIC AND OPERATIVE MEASURES FOR CATARRHAL DISEASES OF THE NOSE, THROAT AND EARS.

In PART I, I described the anatomy of the Nose, Throat and Ears; detailed the physiological actions of the various parts of these organs; set forth the pathological conditions as seen when they are diseased; gave the Etiology of these diseases and portrayed the Symptomatology accompanying them. In PART II, I indicated the various kinds of instruments with which I have had the most favorable results, and described the methods of their use. The next group of subjects that properly follow, and which will be given in this PART, is a description of the Catarrhal Diseases themselves. In connection with each of the diseases, the Therapeutic and Operative Measures that are required for their relief, will be given in detail.



## SECTION I.

### Catarrhal Inflammation of the Nasal and Pharyngo-Nasal Passages, and its Treatment.

If a comprehensive view of this disease be taken, that is, one that will embrace the ages of the patients, from infancy to old age, it will be seen that it assumes various grades or phases, as age advances. The catarrhal inflammation of the infant, and that seen in old age, exhibit markedly different phases, and they are accompanied by as markedly different subjective and objective symptoms. It follows, that the treatment must be varied with the varying grades or phases. It would not be right to say that there are different kinds of catarrhal inflammation, but it is right to say that the age of the patient has a controlling influence on the inflammation.



## CHAPTER I.

### CHRONIC RHINITIS.

#### **823. THE FIRST GRADE, NAMELY FROM INFANCY TO THE THIRD YEAR OF AGE.**

**Objective Symptoms.** These are almost always very slight. If the inflammation is severe, the principal symptom will be that the child is compelled to breathe through its mouth; the mucous membrane will be so swollen, that respiration through the nasal passages is impeded. In mild cases, the only symptom observable, will be a slight flow of apparently normal mucus from the nostrils. It must not be forgotten, that the least indication of a flow of mucus, indicates catarrhal inflammation.

**824. Subjective Symptoms.** If the ears are not involved, and the respiration is not impeded, there will be no subjective symptoms.

The anatomical changes, as stated in topic 357, are but slight, and almost never permanent.

**825.** Light haired children are more frequently affected than those who have dark hair and skin. The darker the hair and skin, the stronger the mucous membrane. Light haired patients do not recover as rapidly as those having dark hair.

**826. Relative proportion of the sexes affected.** In my practice, from 1866 to 1881 inclusive, I treated 45 male children, and 45 female children, showing that the disease is evenly divided between the sexes at these ages.



**827. Prognosis.** As a general thing this is excellent, especially, if the ears are not involved.

**828. Treatment.** In this grade, hygienic treatment, if the ears are not involved, will cure the case in a short time. The local treatment will consist of the application of warm vaseline to the anterior nares, using a No 2 spray producer, being careful not to burn the child's nose. As the secretion is very rapidly formed, it may be required to make applications two or three times the first day, twice the second day, and once each day, for from three to ten days. Usually, eight to ten applications are all that is required. Ear diseases are mentioned in another chapter.

**829. Constitutional treatment.** This is very seldom required, unless the patient has been ailing for several months. In such a case, I have found the following combination very useful; it is not very unpleasant, and soon relieves the child of the apparent weariness or weakness, that almost always follows catarrhal troubles of the upper air passages, namely:

<b>830. R</b>	Quinine sulph.	grs. X,	or gm.	0 65
	Salicine,	grs. vj,	"	0 40
	Fl. ext. glycyrrhizæ	℥℥	"	15 50
	Acidi tannaci	grs. ij	"	0 13
	Aquæ dist.	℥j	"	3 90
	Syr. simplex qs to make	℥ij	"	62 20

Mix the quinine and salicine and glycyrrhiza together, and dissolve the tannin in the water, mix all, and afterward add the syrup.

**Dose:** Teaspoonful every two to six hours as required. If the child requires but one or two doses each day, I always give one dose at bed time.

**831.** Not infrequently, these catarrhs develop a diarrhœa, or a so-called summer complaint. The alvine discharges will contain a large quantity of bubbles, filled with gases, and will be peculiarly foetid. I have found the following preparation valuable in correcting this condition of the system:



832. R	Rheum tinet.	3ij or gm.	7 80
	Potassæ bicarb.	3ij "	7 80
	Aq. menth. pip.	3ij "	62 20
	Aq. cinna.	3ij "	62 20
	Alcohol	3ij "	62 20
	Syr. simplex.	3vj "	186 60

Mix.

Dose: From  $\frac{1}{2}$  to one teaspoonful after each alvine discharge. This is a very pleasant mixture; my little patients always like it, consequently there is no trouble in administering it. Charcoal crackers are also very beneficial in this condition.

**833. When the treatment should be repeated.** A repetition of this course will not be required, unless the symptoms again return, which will not occur until *after another violation of the laws of health.*

**834. THE SECOND GRADE, IN WHICH THE PATIENT IS FROM THREE TO TEN YEARS OF AGE.**

**Objective Symptoms.** These are plainly visible, as seen in the increased color, and increased thickness of the mucous membrane of the nasal passages. The mouth may be open during the day, as well as at night.

**835. Subjective Symptoms.** If the child does not have earache or headache, there will be no subjective symptoms. As stated in topic **365**, even the oldest of this class will not be able to describe the symptoms produced by a cold in the head.

**836. Anatomical changes.** In mild cases these will not be very great, and as a rule, only temporary. In severe cases, the blood vessels may be so enlarged as to become visible, and the mucous membrane so swollen as to prevent normal nasal respiration. See topic **233**.

**837. Relative proportion of the sexes affected.** As in the first grade, the number of male and female patients, are about equal. From 1868 to 1881 inclusive, I treated 142 girls, and 144 boys.

**838. Prognosis.** This is very favorable, as the



mucous membrane has not been long enough affected to be permanently changed.

**839. Treatment.** The observance of hygienic measures, will alone effect a cure in almost every one of this class, except where the ears and tonsils are affected. The local application of vaseline, with the spray producer No. 2, (613) to the anterior nares, will shortly relieve the patient of most of the objective symptoms, and the so-called habit of mouth breathing. Treatments should be given daily for three or four days, then once every other day for about two or three weeks; discontinuing these applications as soon as the secretions are decreased to nearly the normal quantity.

**840. Warm the spray producer before it is used.** Care should be taken to make the entire spray producer warm, almost hot, by holding it over gas, or a coal oil lamp, before the vaseline is placed in the bowl of the instrument. If not so heated the vaseline will not flow into the tubular portion of the instrument; consequently, no spray will issue on allowing the compressed air to pass through the instrument. Even, should a fluid medication be used, one that will flow while cold, it should be warmed, as a cold application will produce an unpleasant, as well as an injurious effect; for the inflamed surface demands warmth as well as medication, and the patient should feel the warmth of every application.

**841. When the treatment should be repeated.** The younger portion of this class may not require a repetition of this treatment; while the older may require it for a season or two, that is, during the months of April and October. If they do not take cold, they will not require it. Ear complications are discussed in another chapter.

#### **842. THIRD GRADE, EMBRACING FROM THE TENTH TO THE TWENTIETH YEAR OF AGE.**

**Objective symptoms.** In the younger portion of this class, these symptoms will not be very marked; but as they reach the twentieth year of age, objective symptoms



will be quite noticeable. The turbinated processes will be enlarged; the tonsils may be in the same condition, and the ear troubles proportionately more serious and permanent. In cases of average severity, the blood vessels will not be in sight. In a large percentage of cases it will be observed, that the heat of the parts is so great as to cause the secretions to become inspissated. These masses are sometimes so large, that the patient cannot get them out of the nasal passage, even when not adhering to the mucous membrane. Sometimes these secretions are formed on the posterior wall of the pharyngo-nasal cavity.

**843. Ozena.** Catarrhal secretion becomes offensive when retained in the various parts of the nasal, pharyngo-nasal cavities, and the sinuses connected with them, sufficiently long to become inspissated. Occasionally, in syphilitic patients, an offensive odor arises from the decay of the nasal bones. Caries of the nasal bones, does not always occur after syphilization, nor does caries of these bones always indicate syphilization, by any means; but it does so generally.

**844.** I am certain, that I have had over a dozen patients who suffered from the destruction of these bones, who never had syphilis. Their histories showed that remedies that produced excessive congestion, were applied to the nasal cavities. One case applied a ten per cent solution of carbolic acid, for nearly six weeks, to his nasal passages, at the end of which time ulceration ensued, and in two months the anterior portion of the nasal septum disappeared. Strong solutions of nitrate of silver, and nitric acid, will do the same thing, so will a strong solution of camphor in oil, or a mixture of camphor and carbolic acid.

**845. Subjective symptoms.** As a general thing these are but slight, but markedly disagreeable, if crusts form in the nasal passages, and on the posterior wall of the pharyngo-nasal cavity. Some cases are greatly troubled with headache, especially during study hours.



The tonsils are frequently enlarged, and may require removal by surgical means, except when they are acutely inflamed, they are entirely painless. Those of this class who are afflicted with otorrhœa, have acquired this complication when younger.

**846. Anatomical changes.** The mucous membrane on the turbinated processes, as well as that on each side of the septum nasi, will be thickened and much congested. Gelatinous polypi are sometimes observed in the nasal passages of the older portion of this class.

**847. Proportion of the sexes affected.** It is remarkable, that in this class there are two female patients to one male patient. The only way to account for this remarkable difference, is the difference in the kind and amount of clothing worn by the two sexes. The boys wear, in summer, about two or three times the amount of clothing that girls of the same age do; while in winter, the boys wear heavy woolen underclothes, woolen neck wraps; boots and overshoes, etc., while the girls of equal age, are more thinly clad, especially during the seasons of social gatherings, operas, etc.

**848. Prognosis.** This is quite favorable with the large majority of cases. The inflammation has not been continued long enough to allow the tissue to assume a very firm or fibrous character.

**849. Treatment.** The enforcement of hygienic measures are essential to success. Even at this early stage of the disease, the practitioner must be watchful of the conduct of his male patients, especially, concerning excesses, as the use of tobacco and stimulants, and keeping late hours, will render his treatment nugatory. With his female patients, he must be careful to see that they are clothed warmly, and that they do not go out at night.

**850. Local applications.** These are made by spray producers Nos. 4 and 5, used as described in topic 610 and 611. About *half a drachm of vaseline* is placed in the bowl of each instrument, keeping in mind the fact-



mentioned in topic 840, and about *one grain* of the eucalyptol mixture. This mixture is made as follows:

R	Eucalyptol (Merk's), m v or gm.	0	32
	Vaseline,	℥j	" 32 10

Mix cold.

851. After these two instruments are used, spray producer No. 1, (812) in which *half a drachm of vaseline* and about *one grain* of wintergreen mixture, and from two to five drops of the pinus canadensis mixture, is warmed and mixed, should be thrown into the pharynx.

852. The wintergreen mixture is made as follows:

R	Ol. Gaultheriæ, m v or gm	0	32
	Vaseline,	℥j	" 32 10

Mix cold. Dose, from  $\frac{1}{4}$  to two grains.

853. The pinus canadensis mixture is made as follows:

R	Pinus condensin, (Kennedy's),	grs. xv or gm.	0	97
	Glycerinæ (Price's),	℥ss	"	15 50
	Aquæ fervens,	℥j ss	"	46 60

M. F. Sol.

853 (a). For many years I have added

Acid carbolic (white cryst.),	grs. ss or gm.	"	0	032
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to the above mixture; but I have become convinced that carbolic acid is injurious to some patients, consequently, I now have two mixtures, one without, and one with carbolic acid in it.

Dose. 2 to 5 drops, mixed with hot vaseline.

854. **Mixing the remedies in the instrument.**

These medicaments are placed in the bowl of the spray producer, and mixed by allowing a small quantity of air to pass through the instrument, while a finger of the left hand, or a fold of a napkin is placed gently on the point whence the spray comes out. The slight pressure on the point, turns part of the air into the upper tube of the instrument, causing air bubbles to appear in the bowl. The rising of the bubbles cause the liquids to mix.

Another method is, to allow the full force of air to pass through the spray producer for an instant, which is



long enough to draw the liquids in the bowl towards the spray points. This force divides the liquids, because of their different densities, into minute globules, which, when well warmed, should be sprayed at once into the patient's mouth.

**855. Inhaling the spray into the lungs.** I usually direct the patient to inhale the spray, which can be done with great benefit to those who have a cough. Although the cause of the cough is usually in the pharyngo-nasal cavity, yet, after patients have made the explosive efforts to relieve the throat of a tickling sensation, these efforts produce, after a time, a certain amount of irritation, which this pinus canadensis mixture and vaseline relieves almost instantly.

**856. Application to the anterior nares.** The last local application that is required to be made, in the vast majority of cases, is that made by the spray producer No. 2, (613), using the same mixture and quantity as that employed with Nos. 4 and 5, using the nasal speculum (452). This latter instrument prevents, to a great extent, the tickling produced by the air striking the vibrissae in the nostrils, as well as affording a more free access of the instrument into the nasal cavities.

**857. The immediate effect of the applications made by the spray producers.** The effect of these applications will be to mitigate, immediately, many of the prominent subjective symptoms. I very seldom have a patient who does not voluntarily state, immediately after a medicated application has been made, that he experiences relief in the nasal passages and throat and that he can breathe easier, also that his head feels lighter, although he had not complained of difficult respiration or heaviness of the head before the application of the spray producers.

**858. Frequency of treatment.** The patient should be requested to return for treatment in the morning of each day, until the secretion ceases to be purulent in character, and then every other day until the discharge is reduced to nearly the normal quantity. After this stage of



recovery is attained, the visits should be only twice a week, for two or four weeks, and then once a week for the same length of time.

**859. Subsequent visits for treatment.** At subsequent visits, the patient should be questioned in such a way, that the answer will not be given in the question. The physician who says: "You feel better this morning, don't you?" or "That last treatment gave you great relief, didn't it?" etc., is sure to fail in practice; nor will he ever learn the true effects of his applications. The first question on every subsequent visit of the patient, should be: "How did you feel after the last application?" He will usually say that the application gave him marked relief. And that after he left the office, the secretions were removed from the nasal passages and throat more freely than formerly, that he does not have as much headache, nor does he have the unpleasant sickness in the morning while clearing his throat—a symptom that always betokens the adhesion of a large quantity of secretion to the posterior wall of the pharyngo-nasal cavity—the crusts in the nasal cavities will be much smaller, and much less adherent.

**860.** The same applications are made as at the first visit; may be they can be a little more thorough in their application of the medicament, as at first visits, the patient rarely takes the treatments as efficiently as at subsequent visits. Do not forget that the patient should feel the warmth of each and every application, and that they should always leave a pleasant effect.

At subsequent visits, the evidences of improvement, after the disappearance of the crusts and purulent character of the secretion, is known by the surface being easily cleansed, and by it remaining cleaner than at preceding visits. With this manifest improvement there will be a subsidence of all the prominent subjective symptoms, especially those that are of a painful character, should these have been more or less pronounced.

**861.** On examination of the patient, after the



fourth treatment, the only difference observable will be that the secretion will be less in quantity, and less purulent in character. If the breath has been affected, this will be improved to some extent. The blood vessels will be more plainly visible, because of a thinner coat of muco-purulent secretion covering them.

**862.** After five or six treatments, the purulent character of the secretion usually disappears, and, with a majority of patients, there is a marked diminution in the amount of mucus. From this stage on to the completion of this course of treatment, the objective and subjective signs of improvement will not be nearly as marked, and with some patients, a comparison with former symptoms will be required to indicate improvement.

**863. Constitutional treatment.** In every case that is chronic, that is if so long standing as to have made an impression on the system generally, constitutional treatment will be required. The following compound is what I have used for over thirty years. I prescribe it almost invariably to every one of my patients over ten years of age. It is composed of the following ingredients:

**863. (a). Larix compound.**

<b>R</b>	<i>Laricis Americanæ</i> .....	$\mathfrak{Z}\text{xv}\text{ij}$ .....	gm.	559	80
	<i>Juniperi communis</i> .....	$\mathfrak{Z}\text{x}\text{ij}$ .....	"	378	28
	<i>Hydrastis Canadensis</i> .....	$\mathfrak{Z}\text{x}$ .....	"	311	00
	<i>Menospermi Canadensis</i> ..	$\mathfrak{Z}\text{vi}\text{ij}$ .....	"	218	80
	<i>Xanthoxyli fraxinei</i> ....	$\mathfrak{Z}\text{vi}\text{ij}$ .....	"	248	80
	<i>Pruni Virginianæ</i> .....	$\mathfrak{Z}\text{vj}$ .....	"	186	60
	<i>Leptandree Virginianæ</i> .....	$\mathfrak{Z}\text{vj}$ .....	"	186	60
	<i>Tanacetæ vulgaris</i> .....	$\mathfrak{Z}\text{ij}$ .....	"	62	20
	<i>Podophylli peltati</i> .....	$\mathfrak{Z}\text{jss}$ .....	"	46	60
	<i>Aloetis socotrinæ</i> .....	$\mathfrak{Z}\text{jss}$ .....	"	46	60
	<i>Theriace</i> (N. O. Molasses)....	$\text{Oxxv}$ .....	"	4976	00
	<i>Alcohol Dil</i> .....	$\text{Oxxv}$ .....	"	149280	00

The dose is from a teaspoonful to a tablespoonful three times a day, just before eating. This compound is a laxative, a diuretic, and tonic as well as an appetizer to a marked degree.



864. *Larix* compound is open to the objections of those who advocate great simplicity in prescriptions. They are pleased when they can apply the epithet "shotgun" to formulas of this kind. Instead of the large number of ingredients being an objection to this mixture, I think that it is an advantage. No one or two of these agents could produce a favorable result, nor could one or two remedies of any other kind have as beneficial an effect as this mixture. My experience has led me to make such prescriptions as jalap, rhubarb and bitartrate of potassium in combination, rather than singly. Numbers, in prescriptions, are frequently essential elements of success. Dr. Brown-Sequard's formula for neuralgia—a deservedly popular one—is composed of eight ingredients, each one of which is an anodyne, and the combination would be proportionately reduced in value, in proportion to the abstraction of any one or more of its elements. The number of elements is necessary to its efficiency.

The *Larix Compound* has proved so useful in my practice, that I wish to dwell upon its beneficial results. If we will examine medical authorities, we will find sufficient records of the effects of the individual ingredients of this compound, to warrant favorable expectations from the combination.

*Larix Americana* is useful in patients having profuse secretion of mucus, or muco-pus. It also has a direct influence on the skin. E. RUDLAM GREENHOW, of London, in his work on *Chronic Bronchitis*, page 52, says:

"In chronic cases, attended by very copious expectoration, such balsamic medicines as ammoniacum, copalba, Canada balsam and benzoin, are often of great service; but, as they are apt to disagree with the stomach, and as the digestive powers in such cases are often very feeble, I have for the last eight or nine years habitually used, in their stead, the tincture of larch [*Larix Europæa* having the same medical properties as the American larch], which has no such tendency, and which I have found equally as serviceable in regard to the bronchial affection. Its effects is not only to lessen the expectoration, and with it the cough and dyspnoea; but also apparently to restore the debilitated mucous membrane to a more healthy tone, AND TO RENDER PATIENTS LESS LIABLE TO CATARRHAL ATTACKS AT EVERY CHANGE OF WEATHER OR SEASON."

I am sure that all that Dr. Greenhow has said in the last sentence of the above quotation, is true.

*Juniperus communis* stimulates the functions of the kidneys, and somewhat that of the skin, and of the organs of reproduction.

*Hydrastis canadensis* is valuable in diseases characterized by sub-acute or chronic catarrhal condition of the mucous membrane, especially, in cases in which the secretions are tenacious, thick and yellow, or greenish yellow. In all catarrhal secretions where there is no fever, this agent produces marked improvement.

*Mentispermum canadense* promotes the digestion and assimilation



of food, and is useful in relaxed and catarrhal states of the gastrointestinal tract.

*Xanthoxylum fraxineum* is a diffusive stimulant, especially influencing mucous surfaces.

*Prunus Virginiana* is useful in irritable conditions of the gastrointestinal or respiratory tracts, associated with irregular or intermittent action of the heart.

*Leptandra Virginica* stimulates the liver, and glands of the intestinal tract.

*Tanacetum vulgare* acts as a diuretic, and is useful in gastrointestinal atony.

*Podophyllum peltatum* exhibits its influence on the small intestines. It is valuable in impairment of the sympathetic innervation, relieving constipation.

*Aloe socotrina* has a direct influence on the large intestines. It is very useful in torpor and relaxation of the muscular coats of the bowels.

The *N. O. molasses* is slightly laxative, and assists in covering the disagreeable taste of some of the ingredients.

The *diluted alcohol* is required to abstract the medicinal properties from the ingredients, and is useful as a stimulant.

This preparation is excellent, or almost worthless, according to the way it is made. If the extracts of the ingredients are taken—which druggists frequently do in order to save time and trouble,—it is altogether likely that the compound will be worthless, as many of the extracts are burned in their preparation. All the vegetable ingredients should be as fresh as possible. It will require an educated druggist to make it properly, and the educated druggist that does not make it properly, ought to be black-listed. A “substitutor” is a dangerous character, and ought to be proclaimed.

I have had a great deal of trouble during the last twenty years, with druggists in regard to this compound. Years ago, when asked for the formula, I gave it at once to every one that made the request. I soon found that my success in treating my patients became markedly less; their bowels remained constipated; their kidneys did not act as they should; their appetite did not improve, and they took cold nearly as frequently as before they came under my care, nor did they increase in weight, as my patients usually do. I inquired where they had my prescriptions filled; upon their informing me, I had eight of them bring their bottles of medicine to me for inspection. Six of the eight, had a compound that differed from any other of the five; two of them had an emulsion of some kind.

I did not give the formula in the previous edition of this work for two reasons; one, that I thought that any other combination that



would act as a *laxative, tonic and diuretic* would answer the purpose, but in this I was mistaken; another, I feared that druggists would continue to do as they had done, namely, use extracts in making up the compound. They could not afford to take the time and trouble to make up eight or sixteen ounces for a patient, knowing that they might not have a call for it again in six months or a year. If they did take the time or trouble, they would be compelled to charge their customer such an extortionary price, that he might not call again. Knowing this, I have recommended *every druggist that I thought was honest*, to procure it from the druggist who did have enough calls for it, to sell it at such rates as would not rob his customer, and still have a living profit.

**865. Treatment of a fresh cold.** If the patient takes a fresh cold, while under treatment, he should take from *three to ten grains of quinine* on going to bed, and a laxative pill, if the *laxix comp.* does not prevent the bowels from becoming constipated.

**866. When the treatments should be repeated.** Patients belonging to this class, may require to be treated from three to six times, each treatment four to ten days apart; each fall and spring, for two or three years; but this will depend upon the care they take of themselves.

**867. FOURTH GRADE, AGED FROM TWENTY TO FORTY YEARS.** As this is the grade of cases that contain by far the greatest number of patients, and the one requiring the greatest care, as well as the one showing the greatest variety of symptoms, I will take pains to describe the various symptoms as minutely as possible, and in doing so, may repeat some that have already been given in regard to previous grades.

**868. Objective symptoms.** In the youngest of this class, a few blood vessels may be visible, but they will not be tortuous in their course. The color of the mucous membrane will be dark red. In patients who have used tobacco, the color will be purplish red. The whole surface will be found to be coated with muco-purulent secretion; generally this will not be so great in quantity as to completely hide the color of the mucous membrane. The greatest



quantity will be seen when the membrane forms creases, as under the superior and middle turbinated processes, and on projections, as on the inferior turbinated processes. Accumulation will also be seen on the posterior wall of the pharyngo-nasal cavity.

In the majority of these patients the mucous membrane will be found to be hypertrophied and roughened.

**869.** In patients approaching the age of forty years, the mucous membrane will be found to have a granular appearance, and, in places, much hypertrophied. In a circle of half an inch in diameter, from 4 to 6 blood vessels will be seen, and instead of their being nearly straight, as in the younger portion of this class, they will be very tortuous, and from 20 to 50 times their normal diameter. In these patients accumulations of inspissated secretion is not nearly as frequently seen, as it is in the younger patients of this class.

**870.** The absence of accumulation, instead of being an indication of a milder form of the disease, indicates a more chronic form, as the mucous glands have lost their function, or ability to throw off pus, as well as mucus.

**871.** Local anæsthesia. Accompanying these conditions of the mucous membrane, there is a certain degree of local anæsthesia. This condition is known, by the patient being unconscious of the presence of the secretion, and by its adhering to the surface much more tenaciously than it does in younger cases.

**872.** The greater or less tenacity with which the secretion adheres to the surface, is a good indication of the degree of anæsthesia of the parts, and of the chronicity of the inflammation. An attempt to remove the secretion by a camel's hair brush, or a cotton applicator, will demonstrate the tenacity with which it clings to the mucous membrane. A part of the secretion may be removed by the two instruments named, but I have never been able to thoroughly cleanse the surface by these means, not even those parts that are easily reached. The



attempt to remove the secretion in this way, will be certain to renew the sensations of sickness at the stomach which are experienced by the great majority of these patients, when making efforts at cleansing their throats in the morning.

**873.** A most important means of judging of the progress of recovery, or of the retrogradation of the inflammation, is the comparative ease with which this secretion is removed from the surface, either by the patient's efforts, or by means of the spray producers.

If the patient is improving, he will notice that the secretion is much more easily removed than formerly, and the spray producers will much more easily cleanse the surface, than a few days or weeks previous.

**874.** If, after he has been treated for some weeks, he has taken a cold, he will notice that the secretion begins to resume its former tenacity of adhering to the surface. Even if the patient does not know he has taken a cold—which he may not—the physician sees no increase of color of the mucous membrane, the fact of increased adherence of the secretion is sufficient to prove that the patient has taken a cold, or has committed some indiscretion, as going out at night, or some excess, as to the indulgence in the use of tobacco or stimulants, or has eaten something that has produced derangement of the stomach.

**875.** It is not uncommon for those patients who have had inspissated secretion in their nasal passages, to observe that the secretion has increased in quantity after the first five to ten treatments. The reason for this apparent increase, is due to the decrease of the inflammatory action by the treatments, therefore, a lessening of the heat of the parts in the same proportion, consequently, a lessening of the evaporation of the fluid portion of the secretion. This symptom is a good evidence of the improvement of the case. Even if the secretion is not increased in quantity, it may seem to be so to the patient, because of its more easy, and consequently, more frequent



desire for removal, and because he is more conscious of its presence, than formerly. His consciousness of its presence, is another proof of the decrease of the anæsthesia of the parts, and of a lessening of the inflammation; in other words, the mucous membrane is returning to its proper sensibility and action.

**876. Subjective symptoms.** In the younger portion of this class, it is not uncommon to have recurring pains in the upper part of the nose, across the forehead, the top of the head, the back of the neck, the shoulders and arms, and difficulty in clearing the secretion from the head and throat, in the mornings especially.

The younger portion of this class are the promulgators of the exceedingly erroneous, and generally entertained belief that colds are but trifling matters; that serious consequences but rarely follow them. This opinion is held, not alone by the laity, but by a large portion of the medical profession. The expressions made by this age of sufferers, concerning their symptoms, plainly indicate their want of knowledge of the nature and effects of colds, and of the diseases originating from them. In speaking of the symptoms they experienced a few weeks before their first visit, they state they thought they had only taken a cold, and that it would soon pass away, as it had done many times during the last five or six years, etc.

**877. The subjective symptoms** of the oldest members of this class are usually less painful, but instead of the pain, there are exhibitions of mental phenomena that are almost never seen in the first and second grades, and but seldom observed in the third grade. Named in the order in which I have observed their frequency, they are: unusual forgetfulness; irritability and despondency; inability to think consecutively; fear or dread of something disagreeable happening, paralysis agitans of the muscles of the arm, the neck and the ears; fear of mental derangement, and, lastly, mental derangement itself. These



symptoms do not always effect this class alone; some of them are manifested in the younger classes.

**878. That mental symptoms** should manifest themselves as the result of chronic catarrhal inflammation of the nasal and pharyngo-nasal cavities, and the ears, is not surprising, when we take into account their close proximity to the brain, especially that portion of it that performs the mental functions. These connections, both by nerves and blood vessels, are most intimate, being separated only by a thin plate of bone. The nerves accompanying these vessels, as well as the larger nerves going to the stomach, heart and lungs, are injuriously affected by this long continued inflammation, and, as would naturally be expected, effect changes in the functions of the organs over which they are ultimately distributed.

The mental disability in many patients is such that they cannot restrain their ill temper; this is especially observable when addressing friends and relatives.

**879. Deceptive symptoms.** There are peculiar symptoms connected with many of these patients, that are exceedingly deceptive, not only is the patient deceived, but so also is the physician.

**880.** As a general thing, it is safe for the physician to locate the disease by the symptoms given by the patient. As a rule, this course is followed in the practice of medicine, but there are throat symptoms, that if used as a guide for the location of the disease, will be certain to deceive the physician. The symptoms referred to are the sensation of the location of inflammation, and of secretion in the throat. I am satisfied, from many years observation, that these sensations arise from irritative inflammation located behind the soft palate, fully three and one-half inches above the place of sensation in the throat.

**881.** If the pharyngeal mirror is turned, so as to inspect the lower part of the throat, or larynx, but slight inflammation will be seen, but not the least quantity of



secretion, yet if it is turned upward, so that inspection of the pharyngo-nasal cavity can be made, **HERE**, inflammation of a very chronic form, and a large quantity of adherent muco-purulent secretion will be seen.

This inflammation and secretion produces sensations in the throat. The evidence of the correctness of this statement is shown by the fact, that the application by spray producers of mild remedies, to the pharyngo-nasal cavities, so as to cleanse and soothe the surfaces, will relieve the patient of the throat symptoms.

**882.** Of course, no effort has been made to give the total symptomatology of chronic catarrhal inflammation of this class; but those symptoms only, that are common between the ages of twenty and forty years.

**883. Anatomical changes.** The younger members of this class, may have hypertrophies of the mucous membrane of the inferior turbinated processes, and lower portion of the septum nasi.

**884.** The tumors found in the nasal passages are gelatinous (mixoma) and fibrous (fibroma). Cases in which these growths are found, have suffered for many years from profuse, watery secretions, they are not found in patients affected with so-called "dry catarrh."

This subject will be discussed at greater length, under the heading of tumors.

**885. Comparative ages of patients afflicted.** Of patients aged from twenty to thirty years, I have treated nearly twice as many females as males, but, from the thirtieth to the fortieth year of age, nearly two and a half times as many males as females. The only way to account for this remarkable change, is, that by the time that females reach the age of thirty years, they have reached the age of reason, particularly, as regards clothing; their past experience has taught them, that their mode of life during their earlier years, was detrimental to health. While the increased number of male patients, from the thirtieth to the fortieth year of age, is alone due to the result of the effects of excesses: tobacco and stim-



ulating drinks, being the principle cause of the ailment.

**886. Prognosis.** As a general thing, the prognosis at this stage is favorable as regards the disease of the mucous membrane of the nasal and pharyngo-nasal passages. With those of the older portion of this class, and who have light hair and skin, a less favorable prognosis of recovery should be given. To the observing and experienced physician, it will be sufficient to elucidate one most important fact, viz: that the changes made by long continued inflammation, are too great, and with too much tendency to permanency, to be eradicated in a few weeks, or a few months, or even a few years' treatment, and, in some cases, even during life.

**887. Local therapeutic measures.** The only difference in the local applications that should be made to this class of patients, is in the quantity of vaseline sprayed into the cavities, and in the quantity of eucalyptol mixture used with it. My rule is to use as small a quantity of aseptic remedies as I think will prevent the secretions from becoming acrid or decomposed.

**888.** In the matter of using aseptic remedies, great judgment will be required, and this can only be acquired by experience. For instance: With the infant, no aseptic remedy is required, for the reason, that its nasal secretions is in nearly a normal condition, only increased in quantity; there being nearly the usual quantity of chloride of sodium, (aseptic) in it, does not become decomposed, consequently, is not acrid. With those from 3 to 10 years of age (chloride of sodium only 1008 instead of 1012), may require a small quantity of aseptic remedy to maintain their secretions in a normal condition, while with those from 10 to 20 years of age, and even up to the 25th year of age their secretions are very apt to take on the most offensive decomposition, in these cases the chloride of sodium is 1006 instead of 1012, consequently, a much greater quantity of aseptic remedy will be required to maintain their secretions from decomposing. While with those approaching the fortieth year of age, whose



glands do not secrete profusely, their secretion does not take on decomposition as readily, consequently, a less quantity of the aseptic eucalyptol will be required.

889. These applications will immediately alleviate most, if not all of the prominent subjective symptoms. As with those of the third class, they voluntarily express relief immediately after treatment. During the next eight or ten visits the improvement will continue, it will be no matter of "guess work" with the patient, as to the fact of improvement. He will not say "I think I am improving," but he will say "Yes sir, I know I am improving, every symptom indicates it."

890. The question may be asked, as the patient has reported himself in an improved condition, the prominent symptoms having nearly all disappeared: "What evidence does the inspection of these parts afford, that there is an improvement?" The answer is this: The muco-purulent secretion on every chronically inflamed mucous membrane adheres tenaciously; the surface seems to lack the ability to throw it off. For instance, if the inflammation is not decreasing, the muco-purulent secretion will adhere so tenaciously, that it cannot be removed except by the aid of a brush; and even then it will not readily be dislodged; but, if the inflammation is subsiding, the secretions will be easily removed, and the surface left nearly clean.

891. After the fifteenth treatment, usually, the mucus is not visible, although it certainly is secreted: the reason being that the mucous membrane has regained so much of its normal activity, or tonicity, that it sheds off any redundancy of mucus. The secretion will not adhere to the membrane in its improved condition, which presents a vastly different appearance from that on its first inspection. The facility with which the mucus can be removed, or the tenacity with which it adheres, are good indications of the amount of inflammation existing, or the degree of improvement made in the case.

892. A greater number of treatments are required



for light-haired and fair complexioned patients, of the younger portion of this class, who have a catarrh of medium severity, than for those of dark complexion.

893. Even after this course of treatment, the patient, if the catarrhal inflammation has been of medium severity, will be liable to take cold on the next change of the season, be it either fall or spring, (October or April) but usually a few treatments, will, with constitutional treatment, drive away the cold, and relieve the recurring catarrhal symptoms, when the patient will continue to improve, as before the cold was contracted. These few treatments in the fall and spring will have to be repeated from three to five years with the younger and middle portion of this class; while with the oldest, they may require to be repeated fall or spring, or fall and spring, during their lifetime. They should receive these treatment once, or at most, twice a week, from two to six weeks. This will have the further effect of reducing the size of the blood-vessels, and the hypertrophy of the membrane.

894. If the nasal passages of a patient under thirty-five years of age should be examined, after the third year of treatment, one would find that the blood-vessels, although very greatly reduced in size, are still plainly visible. The question may be asked: Is this case cured, if the patient reports having had no catarrhal symptoms during the past two years, except at the change of the seasons? The answer must be a negative one. The patient cannot be said to have entirely recovered, until the blood-vessels have been so reduced in size, as to be invisible to the unaided eye. Four or five neglected colds, at succeeding changes of the seasons, for two or three years, will be all that is necessary to cause a return of the first chronic condition. But if the patient, as before stated, receives a local and constitutional treatment at these changes of the seasons, thus preventing the colds from again enlarging the blood-vessels (i. e., from again bringing on chronic catarrhal inflammation), the improve-



ment will continue, until it has assumed so permanent a character, that the patient may pass one year, two or more seasons, without incurring a cold, or requiring a treatment.

**895.** A case of chronic catarrh may be considered cured when the blood-vessels of the affected parts have assumed the condition of the healthy mucous membrane. It may be surmised from this, that I have but few catarrhal patients over thirty years of age, who have recovered entirely; yet, I do lay claim to having a large number, who, with fall and spring treatments, are enjoying entire immunity from all catarrhal symptoms.

**896.** According to my views, patients over thirty-five years of age, will require treatment every fall and spring during their life-time; while those from twenty-five to thirty-five years of age, will require it from three to five years. Those from fifteen to twenty-five, may require only two or three years, while those under fifteen years, from one to two years treatment at most.

**897.** There are cases in this grade also in which the catarrhal secretion becomes offensive, assuming an **ozæmic** character. In the treatment of such patients, it is essential that every particle of the accumulated secretion should be removed. If it should only be partially so, the next outflow of muco-pus quickly takes on the same decomposition, whose acrid quality increases the irritation, and maintains the disease and disagreeable odor. The removal should be accomplished without causing the least pain, and followed by a sensation of relief. The catheter nasal douche (**568**), may be employed to remove the secretions for a time, or until they can be removed by inhalation of warm salt water from the hand or sponge, described in topic **529**.

After this, the spray producers Nos. 4 and 5 should be used in the order named, spraying one-half drachm of vaseline with about three grains of the eucalyptol mixture in each instrument. The anterior nares should be sprayed with No. 2, using a half drachm of vaseline and about three grains quantity of the eucalyptol mixture (**850**).



**898.** In syphilitic cases, the carious bone should be removed as quickly as can be done without injury to the healthy bone.

The only way of preventing the further decay of bone is to reduce the congestion — which cuts off the blood supply to the periosteum — as soon as possible; and, by repeated applications, keep the inflammation down,

Iodide of potassium, in doses of from 5 to 30 grains three times a day, and a four weeks visit to the Hot Springs of Arkansas, will do more to alleviate a syphilitic ozena, that has caries of the bones, than all other therapeutic measures combined.

**899. Constitutional treatment.** This will consist in remedies suited to each individual case. Most cases require a tonic, diuretic and laxative. The larix mixture **863 d)** has been a favorite with me for several years.

This is to be taken three times a day before eating, from a teaspoonful to a tablespoonful, according to the age of the patient.

**900. Surgical measures.** After the case has been treated from five to ten times, and the turbinated processes remain in an enlarged condition so as to interfere with respiration, and a source of excessive secretion, they should be removed by the wire craseur, as stated in topic **863**.

**901. When repeated.** The youngest of this class may require the local treatments to be repeated from time to time to five years, while with the oldest the repetitions will be more numerous, or they may require fall and spring, or fall or spring treatment during their lifetime. They should receive these treatments once or twice a week, from two to six weeks.

**902. FIFTH GRADE; AGED FORTY YEARS AND UPWARD. Objective Symptoms.** The mucous membrane of the nasal and pharyngo nasal cavities and the pharynx has a glazed appearance. Many blood vessels are in sight; and instead of being regular in their course, they are tortuous, and frequently irregular in caliber.



Hypertrophies of the mucous membrane are almost never seen, but if this condition has existed in times past — and it nearly always has existed — the membrane will be found in an atrophied condition.

The secretions are very scanty and adhere tenaciously to the surface.

**903. Subjective Symptoms.** These differ very widely from those of the younger classes. The patients complain of taking cold more easily than any of the younger classes. Most of their symptoms are mental and these vary from a slight forgetfulness to absolute alienation.

**Anatomical changes.** These are permanent. Of course all acute accessions to the inflammation will be lessened by treatment.

**904. Relative Number of the Sex Effectuated.** From 40 to 50 years of age have had nearly 5 male patients to one female patient. And of those over 50 years of age nearly fifteen male patients to one female patient. This difference is due, I think, to the effect of excesses of the male patients, as the number of these patients who did not use tobacco and the number of female patients were almost equal, the difference being in favor of the males.

**905. Prognosis.** This is very favorable as to relief; a promise of a cure should not be made.

**906. Treatment.** This does not differ in any respect from that of the fourth grade, except that the remedies employed are not as strong, nor should there be as much applied, there not being as much secretion to remove.

Patients in this grade will require treatments each fall and spring or each fall or spring as long as they live. It may be that they will be able to pass one or two years without treatment, but this should not be promised. The treatments will have to be repeated whenever the patient takes a cold.



## CHAPTER II.

### DISEASED CONDITION OF THE TURBINATED PROCESSES, AND THEIR TREATMENT.

**907. Swollen turbinated processes.** This condition is seen in every case of acute rhinitis. It is due to excessive enlargement of the blood-vessels of the mucous membrane, and submucous tissues. It is seen in patients of all ages, up to about the thirtieth year. If seen at ages older than this, the swelling is generally due to an acute catarrh or an attack of pruritic rhinitis.

**908. The symptom** most complained of, is the impediment to respiration through the nasal passages. The swelling may be so great as to cause occlusion of the passages to the antra of Highmore, the ethmoidal cells and the frontal sinuses. In this case the most distressing symptoms will be experienced in these parts of the head and face. The flow of secretion is greatly augmented, requiring the frequent use of the handkerchief, and although frequently and violently employed, the relief expected from its use is not experienced. See topics 243 and 247.

The usual local application (850), made for catarrhal inflammation (which, in this case, is the cause of the swelling), will be sufficient to reduce the size of the enlarged processes, except in patients afflicted with pruritic catarrh. This complication will require special treatment, and will be given in another chapter.

**909.** If the enlargement is a permanent one, the complaint is usually designated as hypertrophy of the



**turbinated processes.** The pathology and etiology of this abnormal growth, has been discussed in topics 242 to 247, and 351.

This growth is seen in persons from the eighteenth to the thirtieth year of age.

**910. Symptoms.** Roughly stated, this condition of the turbinated processes, makes itself known by a flow of abnormal secretion, a thickening of the mucous membrane, and consequent impediment to respiration, compelling the mouth to be open, especially at night, on the sufferer taking the horizontal position. As patients must breathe through the mouth, dryness of the throat is the consequence. This is frequently accompanied by a cough, and slight uneasiness or soreness on swallowing.

A fullness or tightness is sometimes experienced over the bridge of the nose; this sensation frequently extends to the forehead, just over the eyes. Generally, the increase of the growth of the mucous membrane on the processes is unaccompanied by the least pain or disagreeable sensation, until there is interference of respiration.

Except during fall and spring months, and during damp days, the thickened membrane shows no sensitiveness; but, during the seasons and time mentioned, the sufferer expresses himself as being under the influence of a continuous cold in the head. On these occasions there is an excessive flow of secretion of a more or less purulent character.

**911.** Patients frequently ask the question: "Where does all this matter come from?" It is difficult to answer this question to their satisfaction. It comes from all the mucous surfaces located above the superior and middle turbinated processes. Hyperplasia of the two lowest and two middle turbinated processes, could not take place without the antra, the cells and the sinuses being in an abnormal condition, and from these, as well as from the hyperplastic processes themselves, come the secretion, the quantity of which astonishes the patient.

**912.** If the enlarged processes touch the septum



nasi, it is usually the portion that is a little below the central portion of the septum; the lower portion as well as the floor of the nasal passage, is very seldom affected. The thickened portion is usually about one-quarter of an inch from the floor of the passage, and it projects from one-sixteenth to one-quarter of an inch. It is usually located directly opposite the thickened inferior turbinated process. When the middle turbinated process is also in a hyperplastic condition, there is usually a line of thickened membrane just opposite to it.

**913. Inspissated secretion is almost never seen in these cases,** for the reason that the irritation maintains a constant flow of fluid muco-purulent secretion. As the flow is almost continuous, there is no fetor to the secretion. The discharge is from the anterior nares. Frequently then a discharge from the pharyngo-nasal cavity also, but this secretion is from the sphenoidal or posterior ethmoidal cells, (as shown by the pain on the top of the head) or from the walls of the pharyngo-nasal cavity itself.

**914. Appearance.** Inspection, anteriorly by the nasal speculum (figure 27), shows the anterior portion of the inferior turbinated process to be greatly enlarged, rounded, and dark red in color. If the patient has just taken "a very bad cold;" the color will be a bright red. The turbinated processes usually touch the septum nasi in severe cases, so as to cause a complete stenosis of that passage. If the hyperplasia extends to the middle turbinated process, this will also be increased in size sufficiently to touch the septum nasi, but of course this condition is not seen if the inferior turbinated process is so large as to fill the passage.

**915. The appearance of the posterior portions of the inferior and middle turbinated processes.** The enlarged processes have a peculiar and striking appearance. They are usually a whitish-gray, and dimpled like a raspberry. If the patient is suffering from a severe cold in the head, the color is turned to a purplish-red.



The **septum** frequently has the same enlarged dimpled appearance and color on both sides, as well as on its posterior edge.

**916.** The cause of this abnormal condition is long continued inflammation, occasioned by the effects of numerous colds, tobacco, and stimulants; these maintaining a congestion and an inflammation of the mucous membrane and submucous tissues.

This abnormal condition is a process of continuous growth, as stated in topic **242** which goes on increasing until a certain limit is reached, then it is one continuous waste, until the enlargement is reduced to even smaller dimensions than the normal size (**247**).

In this atrophic stage, I contend, the parts are nearer a normal state than when in the enlarged condition. The proof of which is that the patient does not experience the least pain or inconvenience; olfaction and respiration being normal.

**917.** This inflammatory process (that is the process passing from the acute, swollen condition to the completed so-called atrophic condition), is one of continuous change; but there are times when the mucous membrane is first brought under the influence of different kinds of diseased action, which, for the sake of convenience, merely, I shall call stages.

**918.** These stages cannot be said to be distinct and separate processes, as one blends so completely with the other, that it is as impossible to state when one begins and the other ends, as it is when day-light and darkness begins and ends, yet the difference between the different stages or conditions are as marked as that of day-light and darkness. With this qualification, I will name the stages as they occur:

1st. Irritation, mediately by the skin or immediately through the mucous membrane of the nasal passages producing paresis of the sympathetic nerves, resulting in

2nd. Congestion: a continuance of which results in



3rd. Inflammation and tumification, which in turn results in

4th. Proliferation or hyperplasia, and a continuation of this growth results in

5th. Atrophy.

**919.** The development of chronic catarrhal inflammation. Colds produce injurious effects on the integument of the body. The nerves produce their effects on the sympathetic ganglia of the neck, which is shown by a parasis of the nerves surrounding the blood vessels of the nasal mucous membrane. This is manifested by a slight enlargement of the capillary blood vessels, barely enough to increase the red color of the membrane, and cause a slight admixture of abnormal secretion with normal mucus.

**920.** After this condition has continued for a variable length of time, from a few hours to a day or two, it takes on a more permanent character. The blood vessels increase in size, so as to plainly lighten the color of the mucous membrane, the abnormal quality of the secretion increases, and there is more or less pain in the parts; this is the stage of congestion.

When this congestion has been continued long enough to be still more permanent, the blood vessels still larger, increasing the color of the mucous membrane, so that it varies from a light-red to a bright-red color, the pain still greater, and the secretions more abnormal in character and quantity, with almost no mucus in it, the stage of inflammation is present.

**921.** If this inflammation is not too excessive in its action—which would bring about a blood stasis and consequent molecular death, or ulceration—and is maintained by an irritation, such as a cold, which affects the blood-vessels of the mucous membrane mediately by the skin, or immediately through the mucous membrane itself by tobacco stimulants, caustics or astringents, etc., the increased flow of nutrition (blood) to the parts compels a



growth of abnormal tissue to take place, as already described. This is called proliferation or hyperplasia.

922. If this abnormal tissue—which is deposited around the blood vessels—continues to increase in quantity, until it is crowded for space—the connective tissue not increasing *pari passu*—the space occupied by the blood vessels is invaded. As this encroachment on the vessels increases, the caliber of the blood vessels are necessarily diminished, and a thickening of the walls of the vessels themselves takes place, all of which slowly but surely decreases the supply of blood, so that the substance already formed by the proliferative inflammation, the hyperplasia, is not nourished as it formerly was. This supply of nourishment (blood) ultimately becomes so small in quantity that the absorbants slowly, but finally take the whole of the newly formed tissue away; then we have what is called atrophy of the mucous membrane (?). It is evident that it should be called atrophy of proliferative structure, atrophy of a product of diseased action; a desirable removal of an undesirable growth; a removal of a substance that any physician would be pleased to know how to accomplish without caustics or surgical means. Nature has done far more for the patient in this case, than can be done by nitrate of silver, chromic acid, galvano-cautery, etc., for these agents leave scars, which are totally unable to perform the functions of mucous membrane, certainly much less than the debilitated mucous membrane that covers the atrophic turbinated processes.

923. It is seen that what is called atrophic catarrh, is the absence of a tissue which was the result of an inflammatory action, and that the mucous membrane has a better opportunity to perform its functions during this atrophy, than when the abnormal tissue, the hyperplastic, or the so-called hypertrophy, was present.

924. Indeed, if kind nature did not intercede to prevent the continuation of the growth, the whole of the nasal and pharyngo-nasal cavities would be filled with it; nor would this space be sufficient, the growth would



continue to increase as long as life remained in the body of the victim. The disfigurement of the face would not check it; nothing short of complete occlusion of the air passages to the lungs, and nothing but consequent death, would arrest it.

**925.** An atrophic turbinated process is as harmless to a patient as is an atrophic tonsil. A hyperplastic tonsil secretes abnormal mucus; an atrophic tonsil secretes less mucus than it should do. So it is with the turbinated processes; the hyperplastic process secretes abnormal secretion, and the atrophic one does not secrete enough mucus. As an atrophic tonsil indicates a better condition, than a hyperplastic one does, so does the atrophic turbinated process indicate a more healthy condition than does a hyperplastic turbinated process.

**926.** *Inspissated secretion seen on atrophic turbinated processes.* Because of the frequency with which dry crusts are seen on these processes, and because there is less secretion than normal, this condition is called "Dry Catarrh." It is a very great mistake to suppose that the thickened secretion is formed where the examiner sees it lodged; yet this is just what every author, that I have seen who has written on the subject, says. In fact, were it not for the presence of the secretion, atrophic catarrh would not be called a disease. There are thousands of atrophic turbinated processes walking the streets of every city in the world that are not called diseased processes, simply because there is no secretion lodged on them. It is not a very difficult matter to prove who is right. The following experiment will do this: Pass a small quantity of absorbant cotton into the affected nostril, pat it gently but well down on the turbinated process where the crust forms; leave this in position over night, and remove next morning. It will be found that the *whole of the crust has formed on the top of the cotton*; showing that the secretions flow from cavities situated above the cotton. The reason why the crust forms on the atrophic portion only, is because the mucous membrane of



this part does not yet perform its complete functions; does not secrete enough mucus to prevent the inspissation of the secretion that flows from parts situated in the upper portion of the nasal passages.

**927. Treatment.** Cases in whom the secretion does not form crusts, do not require special treatment, the spray producer No. 5, is the most important instrument in their treatment; it throws the medicament under the turbinated processes, the location of the outlets from the sphenoidal and ethmoidal cavities. In those cases in whom crusts are seen, these must be removed by the catheter nasal douche (figure 65, 568), if the patient cannot easily blow them out of the nasal passages after three or four days treatment with the spray producers Nos. 4, 5, 1 and 2. In some cases the application of cotton to the locality covered by the crust, has a very beneficial effect. The nasal passage must not be so filled with the cotton that the respiration will be impeded in the least degree.

**928.** The first evidence of recovery is the decrease in the size of the crusts and the increase in the quantity of the secretion. As soon as the crusts have disappeared, the evidence of continued recovery is the decrease of the purulent quality of the secretion; the next is the decrease in the quantity of the secretion.

**929** The length of the course of treatment of these cases will depend upon the age of the patient, the color of the hair, and the observance of the laws of hygiene. Daily treatments will be required while the secretion forms into crusts; then every other day until the persistent quality of the secretion disappears; then twice a week until the quantity of the flow is reduced to nearly normal; then once a week or once in ten days for four to six times. These applications should be made from three to six times at each change of the season, that is, April or October for several years. These spring and fall treatments will produce marked improvements in the patient.



## CHAPTER III.

### DISEASED CONDITION OF THE SEPTUM NASI.

**930. NASOSEPTITIS; hyperplasia.** This enlargement is exceedingly common. As stated in topic **812**, when the inferior or middle turbinated process has greatly increased in size, the enlargement of the septum is usually located opposite to it.

The removal, by mechanical means, has been described in topic **865** and is to be resorted to if the growth is not materially reduced in size by six or eight local treatments. I usually employ three needles; one transfixing the center of the growth and one on each side. As soon as the wire snare has cut well into the growth, the needles are withdrawn. If this is not done hemorrhage is sure to follow. As these enlargements are very easily reached, I would not recommend the application of the galvano-cautery or chromic acid, for the reason that the scar left by these, is much larger than by the wire snare.

**931. After removal,** the parts should be sprayed very gently with the No. 2, using the spray as cold as possible. Making the application warm, would be almost certain to cause hemorrhage. The bridge of the nose should be rubbed with vaseline.

**932. Deviation of the septum nasi.** I am satisfied that I have seen cases whose septum nasi was compelled so to speak, to deviate because of the presence of continued inflammation; the inflammatory process was not so excessive as to cut off the blood-supply to the septum, for if it had, atrophy would have followed; but in-



stead of that a hyperplastic enlargement was the result.

I have had quite a number of cases whose nasal septum has become more nearly straight after two or three months treatment. I have proved this by plaster casts of the nose, and my patients have also noticed it, and *voluntarily* mentioned the fact to me. This indicates that a part of the cause for the deviation was occasioned by a swollen condition of the septum.

When the growth is located in the cartilaginous portion of the septum, my method of operating is as follows:

**933.** I commence by peeling up the mucous membrane, from the lower portion of the septum, and go as high as I desire to cut for the removal of the protruding portion. This peeled up portion of the mucous membrane is not divided at the upper part of the septum, but left attached there. As soon as the peeling operation is performed, the knuckle of cartilage, that is obstructing the respiration, is at once cut off with a small bistoury, antiseptic precautions being taken. The flap of mucous membrane that was turned up is now allowed to fall on top of the cut surface, and is maintained there by a compress of cotton. To enable the patient to breathe through his nostril—and this is essential to success—the cotton should be wrapped around a short piece of india rubber tubing.

**934. When removed.** The compress should not be removed for fully a week or ten days, unless the patient complains of pain or great uneasiness. When it is removed, another one should be placed back at once. The application of the anterior spray producer to that nostril should not be made unless there is dryness or heat of the nasal passage. It will require about three or four weeks for the mucous membrane over the cut cartilage to become fully as healthy in appearance as the surrounding membrane.

This method prevents the formation of an extensive cicatrix, consequently prevents the formation of a crust upon the scar tissue.



**935. Cutting through the septum nasi.** This is another method of removing the enlargement. It is done by dividing the septum with a sharp pointed bistoury. Before cutting this piece of cartilage out, the mucous membrane, covering the knuckle, should be peeled up as before, and held out of the way while the knuckle is cut out.

**936. After the knuckle is cut out,** the upper and lower portion of the cut septum will have to be pushed forcibly toward the center, and maintained there by a compress, made and formed as already described. As the cartilage will have the tendency to return to its former position, because of its resiliency, the upper and lower portion will have to be pushed beyond the line described, so as to allow it to partially return.

**937. Crushing.** The method, usually employed, of crushing and cutting the knuckle at the same time with the same instrument is a very poor one. I have seen four persons who had this operation performed, on two of whom I performed a secondary operation, for relief of a resulting deformity which was worse than the primary deformity. The other two were not improved in appearance by the operation, and were compelled to rub mutton tallow on the resulting scar, to prevent the formation of a scab. Various forms of forceps have been used by various physicians; but more have copied after Mr. William Adams, of London. He employs a pair of powerful forceps, with smooth, flat blades, these blades are introduced, one into each nasal passage and made to grasp the septum, and crush it, and push it toward the middle line. After this crushing operation, plugs of ivory or steel are pushed into the passages to hold the septum into position (!). Of course it does not stay there, and because of this fact, others have put cutting blades on these forceps, and thus destroy enough, at least, of the natural resiliency of the cartilage to resume its usual abnormal position. As intimated, these also fail in the great majority



of instances. Carl Michel's plan is to direct the patient to put his right finger—if the septum deviates to the left—as far up his nose as possible and to push the septum toward the right side. This is to be done several times every day for several weeks or may be months.

**938.** I have several patients who, in this way, rectified their own deviated nasal septum; all were under 15 years of age. In one of these cases the septum was greatly deformed.

Blandin used a punch to remove a piece of the cartilage. Walsham replaces the bent septum by main force at the same time pierces the cartilage through in a subcutaneous manner. This cutting is done to make the knuckle portion retain its proper place, but it will not do so.

**939. Attachment of one of the turbinated processes to the septum.** This is not a very rare affection. The remedy is to cut out the portion forming the attachment, which is an easy matter. I performed this operation in 1868, and to this day the patient is compelled to anoint the scar on the inferior turbinated process with vaseline, using a camels hair brush. This result has followed every case on whom I have operated, with one exception, and it may follow in this case also, but I think not.

The operation in this last case was performed so as to leave a piece of mucous membrane to cover, at least a part of the surface formed by the cut. The narrow incision is made to cut off the under portion of the bridge or attachment, leaving a thin, upper portion, which when loosened from the septum by the second cut, falls down over the cut surface, thus preventing, to some extent the formation of a cicatricial surface.

**940. The after treatment** in such cases is the same as for the removal of the knuckle of the septum.

It is evident that the cut surface of the septum will leave a scar, but I have not had a patient complain



crusts forming here, nor have I ever seen a crust lodged there.

**941. Abscess of the septum nasi.** At one time I thought that these occurred in syphilitic patients only, but I am now sure I have seen it follow the use of tincture of iodine, carbolic acid and the use of the Cutlar inhaler and the "carbolic smoke ball."

The treatment is to open the abscess by an aspirator and draw off the pus as often as it forms. Aspiration will require to be done once each day for nearly a week. I had one case that was aspirated sixteen times.

**942. Incision not recommended.** Frequent incisions of these abscesses will be liable to induce death of the periosteum and consequent loss of a part, at least, of the bony septum.

#### CHAPTER IV.

##### DISEASE OF THE CAVITIES OPENING INTO THE NASAL PASSAGES.

**943. NASOANTRITIS; Inflammation of the Antrum of Highmore.** This cavity is frequently inflamed, but always secondarily; more frequently due to disease of the nasal cavities, and occasionally to decayed upper molar teeth. I have had several cases that were caused by the use of the Weber nasal douche. Another cause of disease of this cavity is the covering of the opening into it by a nasal tumor. These tumors sometimes protrude into the antrum, and, of course, greatly increase its diseased condition. Tumors sometimes take their origin from within the cavity, but the mucous membrane must have been in a catarrhal condition for a long time previous to the formation of the tumor. Very few of the patients that had these growths were affected with



syphilis, and in those who were syphilitic, I believe that the mercury, employed in their treatment, was the cause of the disease in the antra, as well as other cavities of the head from which they suffered.

**944. Age of patients affected.** It is evident that catarrhal disease of the antra cannot occur in patients under 30 years of age, except in very rare instances, as nasal trouble must be of sufficient duration to extend by continuity of structure to its cavity, or for the formation of a tumor, or the decay of a tooth.

**945. SYMPTOMS.** These will vary according to the cause of the inflammation. If caused by **closure of the infundibulum**—brought about by swelling of the mucous membrane in the nasal passage—then there will be pain in bridge of the nose, a throbbing and **sensation of heaviness** or of a weight in the cheek. This may be so great as to cause the patient to lean the head toward that side. I have had patients say that this "pulling" was so excessive, as to require quite an exertion on their part to maintain the head in the erect position.

**946.** If the antrum is diseased because of the presence of a **tumor** covering the infundibulum, the heaviness or weight spoken of will not be experienced, unless the patient takes a bad cold in the head so as to aggravate the inflammation of the catarrhal mucous membrane in the nasal passages. The prominent symptoms in cases of this kind, are the impediment to nasal respiration, and slight deformity of one or both sides of the nose, these being more full than is symmetrical with the contour of the face. The cheek of the affected side will be swollen and hard; and the skin over the malar bone will not move as freely under the finger. An examination of this kind will cause a dull, heavy pain.

**947.** If a **decayed or inflamed tooth** is the cause of the disease, the pain in the tooth will indicate the origin. Some times the tooth is not the least sensitive, even if it is decayed, unless touched with a cold, steel instrument.



If **necrosed bone** be the cause, the odor, and the concomitant symptoms will indicate the condition.

**948. TREATMENT.** In case the infundibulum is closed by inflammation, the usual treatment is all that is required. The spray producer No. 5, is the most important instrument. I usually use this two or three times, filling the bowl of the instrument full of plain vaseline the first one or two times, and the last time using the usual quantity of the eucalyptol mixture also. The next most important instrument is the spray producer No. 2. This also should be used with plain vaseline once or twice, and then with the eucalyptol mixture as usual. Constitutional treatment will be required.

The **first application** will give the patient marked relief. These applications should be made once daily for a week or ten days, or while the secretions from the nostrils are quite purulent in character; then every other day for about three or four weeks, or until the quantity of the secretion is reduced to nearly the normal; then twice a week for a few weeks longer, or until all symptoms of nasal catarrh have disappeared. The usual fall and spring treatments will be required in every one of these cases.

**949.** If a **tumor** is the cause of the antral disease, its removal will be required in addition to the treatment for the chronic catarrhal condition.

**950.** If a diseased **tooth** be the cause, the patient should be sent to a dentist for its extraction, and then the case treated as though the disease was caused by an extension of nasal catarrh.

It is common to treat the diseased antral cavity through the opening made by the extraction of the tooth, but **this practice is not good.** I know that in saying this I am opposing all authority, but I am borne out by my own experience. I remember one case in particular; a lady, who had been treated constantly for four years through the opening made by the extracted healthy tooth. This patient had been under the care of four good prac-



titioners, and three good dentists. On seeing the case at the first visit, I found the gold plug maintaining the opening; this I withdrew, and treated her successfully for chronic nasal catarrh. I think that maintaining an opening into the antrum will be almost certain to maintain its catarrh condition. I have positive proof of this, as the following histories of cases will show:

**950 (a). Disease of the antrum of Highmore.** In Oct., 1869 Mr. A., 42 years had his brother, a dentist, extract a decayed upper molar. The dentist treated the diseased antrum through the socket of the tooth for two years. At this time he came to me. I withdrew the plug, and directed that it should be left out; treated him for his chronic nasal catarrh for about six weeks. The catarrhal symptoms were so greatly reduced that I informed the patient that I would soon discharge him, for that season. On my saying this he informed me that he still had a slight discharge from the antrum. I asked him how he knew it. He said that when he "removed the plug there was a little matter on it." I replied that I thought that the plug had been left out from the commencement of his taking treatment from me. He said that his brother, the dentist, insisted on the plug remaining, so that if my treatment did not cure him he would not be compelled to have an operation performed to draw the pus from the antrum. Two other dentists, after hearing the history of the case, agreed with this dentist, but I was not informed of it. I insisted upon the withdrawal of the plug; it was taken out, and left out, and the case made a good recovery.

In about four weeks after this (April, 1870), he informed me that he experienced a sensation of relief of a "weighty feeling" that had been present ever since his tooth was extracted, about two and half years before. This relief was experienced in less than a week after the close of the opening into the antrum.

Mrs. K., 49, consulted me in Oct., 1882, about an abscess in the left antrum. The opening, left on the extraction of the second molar, was fully a quarter of an inch in diameter. It was so large that I introduced a small mirror into the antrum and made a complete inspection of the whole inner surface. She had been told that the opening must be maintained, until the inflammation in the cavity was so far reduced that pus would not come from it; to do this she had an ivory plug inserted.

When I commenced treating her, I directed that the ivory plug should be removed, and a small piece of cotton used in its stead, as to prevent the food from passing into the antrum. After treat-



her about two or three weeks, the opening was still about the same size, and, although her nasal catarrh had greatly improved, pus continued to form in the antrum, as could be seen on the cotton plug, not only was pus found, but it was quite decomposed, as could be easily ascertained without bringing it very near the nose, not nearer than about twelve inches. To make nature occlude this passage, I cut away a good portion of the cicatricial tissue from around the opening, this caused sufficient inflammatory action to close this unilateral opening in about a month. In about two weeks after the closure all symptoms and sensation of the disease in the cavity disappeared.

**951.** If the antrum is diseased, because of the presence of dead bone, an operation for removal of the necrosis will have to be performed.

These cases are usually tedious, and are always preceded by a long standing nasal catarrh, which must be treated, both locally and constitutionally.

**952. ETHMOIDITIS ANTERIOR; Inflammation of the anterior ethmoidal cells.** This affection is erroneously called atrophic catarrh, dry catarrh, ozæna, etc. Inflammation of the anterior ethmoidal cells is a very common form of nasal catarrh. The secretion from these cells flows through their openings, situated under the middle turbinated processes, and forms crusts upon the inferior turbinated processes, but before inspissation takes place the muco-purulent secretion becomes decomposed, emitting an offensive odor, hence the name ozæna. The proof that the crust, in such cases, is not formed by the inferior turbinated processes—the place of lodgement—is the fact that if a small piece of cotton is laid upon the place from which such a crust has been removed, and allowed to remain there until next morning, it will be seen that the whole of the secretion is lodged *on the top of the cotton*; plainly proving that the mucous membrane under the cotton did not produce the secretion lodged on the top of the cotton, and when this cotton is withdrawn the surface so covered will be found to be entirely free of muco-purulent secretion. The reason why the secretion remains on these turbinated processes, is because the



mucous membrane of such cases, is much less moist than is a healthy mucous membrane; the membrane on the processes being in an atrophied condition. Atrophy is not always present in this kind of catarrh, when not present, no crust is formed. The complaint is known as atrophic catarrh because of the presence of the atrophy.

952 (a). Besides the lodgement of the inspissated secretion upon the inferior turbinated processes, there are other symptoms, objective and subjective, that are frequently present, that will differentiate this kind of catarrh from that of other localities as, for instance, catarrh of the posterior ethmoidal cells, namely: the rounded, swollen condition of the nose, especially the bridge, frequently accompanied by enlargement of the blood vessels of the integument of this part. With this swelling there is more or less pain of this part of the nose, and a sense of fullness and pressure. Another objective symptom is the abnormal bony enlargement seen on each side of the bridge of the nose. Sometimes this enlargement is so great as to be markedly noticeable. Not the least heed is taken of this enlargement by authors, and it is considered as a congenital conformation, and, consequently, normal, instead of a deformity, a formation, a growth resulting from diseased action within the anterior ethmoidal cells.

953. A name demanded. It is very evident that if what I have said be true, this is a complaint that demands a name, and one that will point out its location, and will prevent the unavailing local treatment that is now being directed to the locality upon which the crust forms, namely the inferior turbinated processes. These processes are now treated as though the atrophied mucous membrane covering them pours out the secretion that produces the crust.

954. I have proposed for this inflammation of the anterior ethmoidal cells the name of **Ethmoiditis Anterior**; but the name *Cellitis Ethmoides Anterior*, or *Exoethmoiditis Anterior* might as plainly designate the actual location



of the disease. The name ethmoiditis, would strictly mean an inflammation of the ethmoid bone, while *ethmoiditis* and *cellitis ethmoides* would indicate that the mucous membrane of the cells is the part affected. This would be strictly correct in all cases at the commencement of the complaint; but as the more chronic form—in which the bone itself is also diseased, as shown by its argument—is more frequently met by the physician, I think that *ethmoiditis anterior* will be as descriptive as is required.

955. It is seldom that "itis" is affixed to a word ending in "oid", but it is not uncommon to see other affixes, as in the word "mastoid". We have "mastoidalgia," "mastoideocentesis", etc., etc. "hamatoid", "hamatoidin," etc. Thomas, in his Medical Dictionary, 1886, give the following: "Arachnitis, a faulty term, denoting inflammation of the arachnoid membrane." On the next page he gives "Arachnoiditis, inflammation of the arachnoid membrane." I consider this a sufficient precedent.

956. Not unfrequently the disease of the anterior ethmoidal cells is taken for antral disease. There is no resemblance of symptoms between the two diseased cavities. The pain from the cells is on the bridge of the nose, that from the antrum, on the cheek. The swelling of the cells is seen on each side of the bridge of the nose, that of the antrum on the outside of the malar bone. Holding the head forward evacuates the cells, but not the antrum, the latter is evacuated by lying on the side opposite to the diseased cavity.

Mr. Spencer Watson, in his excellent work on *Diseases of the Nose*, 1875, makes this mistake. On page 157, in sub-section 3; Abscess of the Antrum, he says:

"Trousseau relates that he was consulted, on account of ozæna, by a gentleman of forty of age, who was in good health, except for this discomfort. When told to close his mouth and breathe through his nose, Trousseau could detect no bad odour. This gentleman then said that he could produce the stench at will; he sat down, with his head inclined very much downward, and discharged into his pocket-handker-



chief a large quantity of horribly stinking pus. There was probably some necrosed bone in the antrum, with supperation, but without occlusion of the antral orifice into the nasal fossa. This case may be taken as typical of the class, there being no pain nor distension, and no external objective signs whatever of the presence of pus in the antral cavity."

The anatomical formation of the cavities under consideration, ought to teach that leaning ones head far forward, will not evacuate the antrum of Highmore, but will do that of the anterior ethmoidal cells.

**957. Symptoms.** The symptom most commonly observed, is the fact that the patient is conscious of a disagreeable odor to his breath, upon making especial effort to smell it. This effort is made by short breaths through the nostrils, with the mouth closed. This same method is employed by patients who have antral disease, as well as by those having diseased sphenoidal and frontal sinuses. The patients consciousness of a disagreeable odor to his breath, and the slight enlargement on each side of the bridge of the nose, as well as a persistency of the catarrhal discharge; these, together with the pus flowing out of the nostrils upon leaning the head far forward, make the differential diagnosis of anterior ethmoidal disease.

**958. Treatment.** This in no way differs from the treatment of common chronic rhinitis, except in the greater length of time required for the first course, and that there is more liability for relapses than in simple chronic rhinitis.

**959. ETHMOIDITIS POSTERIOR; Inflammation of the posterior ethmoidal cells.** A diseased condition of these cavities is frequently met in rhinal practice. The catarrhal secretion from these cells flows through their openings located under the superior turbinated processes (10 and 24). If the secretion is fluid, it will adhere to the surface and flow along the vault of pharyngo-nasal cavity; but if the secretion has the consistence of pus, it will then flow upon the middle turbinated process and there



become inspissated, provided always, that the mucous membrane on these turbinates is in an atrophied condition. The crust thus formed will be located higher and further back in the nasal passages. The application of a cotton pledget to the middle turbinated processes, made in the same manner as to the inferior turbinated processes, proves that the crust or secretion that lodges on the middle turbinated processes is not the product of these processes, but that of the posterior ethmoidal cells.

960. The name given—**Ethmoiditis Posterior**—will indicate the location of the inflammation. The term *Cellitis Ethmoides Posterior*, or *Isoethmoiditis Posterior*, might more clearly set forth the location of the commencement of the complaint; yet as this inflammation is frequently so severe as to affect the bone also, I think that the name first given will be sufficiently descriptive, and will prevent misunderstanding.

961. **Symptoms.** Very frequently, there are no subjective symptoms. When such do exist they are known by painful sensations between the eyes, but quite deeply seated. The objective symptom most frequently seen, is the collection of muco-pus lodged in the vault of the pharyngo-nasal cavity. In almost every case, where these cells are diseased, a stream of muco-purulent secretion is seen flowing down the posterior surface of this cavity, and in every instance where the stream is seen, either the ethmoidal or sphenoidal cells are the origin of the flow. This is evident from the anatomical conformation of the turbinated process. Secretion flowing from the superior turbinated processes has the tendency to flow backward in the same direction, but their small extent of surface is not sufficient to form the large quantity of secretion seen flowing down the posterior wall of the pharyngo-nasal cavity, and so excludes these turbinates from being the origin of the flow. The same may be said respecting the extent of surface of the middle turbinated processes; thus excluding them as being the origin of the flow of the secretion. Notwithstanding this, it is evident that



the flow does not come from them, and the fact that their posterior extremities are some distance below the roof of the pharyngo-nasal cavity, proves that the flow cannot originate from them. Nor can it come from the inferior turbinates. No secretion can leave either of the middle or inferior turbinated processes and flow upon the posterior wall of the pharyngo-nasal cavity; all secretion from these processes must flow upon the posterior or upper surface of the soft palate. Not infrequently this secretion can be seen leaving the velum, about midway between the uvula and the lateral wall of the fauces.

**962.** Another proof that these secretions are not formed on any of the turbinates is the fact that there is no secretions seen on them, and the inability of the patient to blow muco-pus from the anterior nares. There is also absence of any impediment to nasal respiration and nasal tone to the voice, which would be present were the mucous membrane on the turbinates diseased to such a degree as would make the throwing off of such a large quantity of secretion possible. Most persons who suffer from gagging or severe coughing in the morning or after eating their breakfast, suffer from inflammation of the posterior ethmoidal or sphenoidal cells.

**963.** The treatment of this affection does not differ from the usual treatment given to simple chronic rhinitis. The spray producers No. 5 and 2 should be used very freely. Constitutional treatment will be required, and electricity should be employed, using it centrally and locally over the face and head.

**964.** The collection of muco-purulent secretion seen on the middle turbinated processes, may be also a product of the sphenoidal cells, as their openings are also under the superior turbinated processes.

The name **Sphenoiditis**, will describe the location of this affection. Like the disease of the ethmoidal cells, it may be called *Cellitis Sphenoidites*, or *Esosphenoiditis*.

**965. Symptoms.** The subjective symptom, if any is present, is pain or distress on the top of the head.



and the objective symptom, the collection of muco-pus in the vault of the pharyngo-nasal cavity, as is seen when there is a flow from the posterior ethmoidal cells. It should be remembered, that the opening from the sphenoidal and the posterior ethmoidal cells, come from under the superior turbinated processes.

**966. The treatment** does not differ from that of chronic rhinitis.

**967.** There are other cavities whose catarrhal secretion frequently forms crusts upon the inferior turbinated processes, namely, the frontal sinuses, the openings of which are situated under the middle turbinated processes.

**Sinitis Frontalis**, will, I think, plainly locate this inflammation.

**968.** I have treated a great number of patients who complained of more or less **pain over the eyebrows**; but the number who were afflicted with abscess of this region are, fortunately, not very large.

**969.** The **symptoms** of the formation of an abscess are so marked, that they need scarcely be mentioned. Excessive pain over the eyes, and swelling, and consequent deformity of the face, are the most prominent.

**970. Treatment** This consists in the use of spray producers in the posterior and anterior nares; the No. 5, being the most useful, then the No. 2. Two or three fills of each of these two instruments, using plain vaseline, should be followed by the usual eucalyptol mixture. If an air pressure of ten lbs. to the square inch in the air reservoir, does not cause pain, this force will be more effective in blowing away the muco-purulent secretion from under the middle turbinated processes, the location of the infundibulum. Of course the entire surface of the nasal and pharyngo-nasal cavities should be treated also.

**971. As the closure** of the openings to the sinuses is mainly the cause of the pain and the accumulation of the muco-purulent secretion—the sole cause of the formation of the abscess—the site of the opening should



receive the greatest amount of spray. I have not yet had occasion to resort to the trephine to make an exit for the pus; as it always escapes through the natural openings, beginning to flow almost immediately after the first treatment.

The application of tinctures of iodine to the eyebrows is not only of no benefit, but proves an additional source of pain and discomfort to the patient.

**972.** In syphilitic cases, the same course should be pursued. When the bones are implicated they should be removed, *if possible*. I recommend all my syphilitic patients to visit and remain at the Hot Springs of Arkansas for about six weeks, and to repeat the visit once a year, for four or five years. I am led to make this recommendation because of the oft-repeated beneficial effect on every patient who has visited these springs, as well as from information derived from reputable physicians who reside at that place.

The fever accompanying the inflammation and abscess of the frontal sinus should be treated on general principles. I am fond of prescribing tinct. of aconite root for every inflammatory fever caused by disease of any portion of the respiratory organs. Usually the system is somewhat deranged, and will require a tonic, diuretic and a laxative, as that given in **863** (a).

**973.** All four of these affections, namely, ethmoiditis anterior, ethmoiditis posterior, sphenoiditis, and cellulitis frontalis are confounded with atrophic catarrh. Atrophic catarrh forms no crusts, the mucous membrane is too dry to pour out secretion; there is no odor from this affection, the only symptom that patients complain of in atrophic catarrh, is a sensation of dryness. There are thousands of cases of atrophic catarrh walking our streets, that do not make any greater complaint than do persons affected with atrophic tonsils. Many physicians recognize atrophic catarrh by the presence of crust alone, when really the crust is evidence of inflammation located above the place of lodgement. Again it is known that atrophic mucous



ane has lost so much of its normal function that it **secrete** as much mucus as it should do, yet we **ld** that this membrane, when located on the turbinated processes pours out so much secretion that crusts **rued** from it. This is an unscientific assertion and **er** been proved.

**74.** The differential diagnosis between ethmoiditis **or** and sinitis frontalis—the secretion from both **lo** flowing upon the inferior turbinated processes — **it** in sinitis frontalis there is pain in the forehead **the** eyebrows, while in ethmoiditis anterior there **illness** and pain on one or both sides of the bridge **y** nose. Not unfrequently both of these affections **it** the same time. Ethmoiditis posterior and sphen- **y** also frequently exist at the same time. When the **inflammation** predominates, the patient experiences **l** sensations over the top and back portion of the **while** the pain occasioned by ethmoiditis posterior, **ited** on the upper and anterior portion of the head.

**75.** Ethmoiditis anterior, ethmoiditis posterior, **piditis** and sinitis frontalis, besides being four **new** **t**, are also four **new** **affections** even to rhinologist. **act** that these affections have been called atrophic **t**, dry catarrh, etc., and treated as though they were **ased** condition of the turbinated processes on which **retion** is seen lodged, will furnish the reason why **ians** have considered atrophic catarrh incurable. In **ses** of so-called atrophic catarrh, the location of the **ent** of the secretion has been mistaken for the loca- **t** the disease.



## CHAPTER V.

### DISEASES OF THE PHARYNGO-NASAL CAVITY.

**976.** It is essential to an accurate description of the location of a tumor or a disease, that there should be no ambiguity regarding the exact topography of the locality under consideration. The locality indicated by the term pharynx, by some writers means that portion of the air passage, extending from the lower portion of the elevated soft palate to the larynx; others, stop with the base of the tongue, and call all below the base of the tongue, down to the top of the trachia, the larynx; while still others extend the pharynx from the basilar process to the larynx. The following division of the superior portion of the respiratory tract, extending from the basiphoid to the larynx, will prevent this confusion.

The space of this tract, bounded above by the basiphoid, anteriorly, by the posterior surface of the velum palati and the posterior nasal openings, and posteriorly, by the first and upper half of the second cervical vertebra, should be called the **pharyngo-nasal cavity**. The reason why the pharynx should be named first, is because this cavity is examined through the pharynx. The inflammation of this cavity, should be called **pharyngo-rhinitis**.

**977.** The name **pharynx** should be restricted to that portion of this passage, that lies below the pharyngo-nasal cavity, and bounded below by the larynx; and the name **pharyngitis** should be restricted to this locality.

**978. PHARYNGO-RHINITIS.** Chronic inflam



**mation of the pharyngo-nasal cavity.** This is always secondary to disease of the nasal passages. As the diseased condition of these passages recover, so does the inflammation in the pharyngo-nasal passages recover. I am satisfied, that the principal cause of this chronic inflammation is due to the irritation of diseased secretion that gravitates from diseased surfaces located above it, just as a sore ear of a child recovers when the otorrhea, which is the cause of the soreness, is cured.

**979. Symptoms.** A sensation of dryness and stiffness, is the most that is complained of by patients. Upon inspection, the surface is seen to be dark red, and in patients from twenty-five to thirty-five years of age, it is coated with muco-purulent secretion. If especial pains are taken, this stream of matter can be traced to each side of the post nasal septum, showing plainly that it has sphenoidal or posterior ethmoidal cells, or both, as the source of supply.

**Deafness** is a symptom of pharyngo-nasal disease, the inflammation extending up the Eustachian tube by continuity of structure, by vesicular and nervous connections, and by the patient's efforts at blowing the nose to free himself of the sensation of mucus in the nasal passages.

**980.** In patients over **thirty-five years of age**, the stream of muco-purulent secretion is not seen, but in its place, the whole surface is covered with a glary mucus, that but slightly covers the dark, red color of the mucous membrane. An unpracticed eye may not see this coating; but it can easily be shown by the use of a No. 4 spray producer, which raises it from the surface, and frequently forms it into an air bubble. The treatment does not differ from simple chronic rhinitis.

**981. Adenoid growths in the vault of the pharyngo-nasal cavity.** These are hyperplastic growths of the mucous membrane. They are always the result of long standing and profuse catarrhal inflammation of the



sphenoidal or posterior ethmoidal cells, or of both. This catarrhal secretion is irritating in its action, and thus originates and maintains these growths in the cavity of the pharyngo-nasal cavity. They are most frequently seen in light-haired children, and sometimes grow to so great a size, that they fill the whole cavity and completely occlude nasal respiration.

**982.** The most prominent **symptoms** are the nasal tone of the sufferer, and the continual presence of a stream of muco-pus, flowing down the posterior wall of the pharyngo-nasal cavity. There is no pain, nor any sense of fullness. The secretion is mostly clear, thick, tenacious and slightly odorous. Sometimes the ears are affected but this is only in case the growth is of sufficient size to press upon the mouths of the Eustachian tubes.

**983.** If the growth is large, it is not difficult to see it, aided by the pharyngeal mirror, as the soft palate is in a slightly anæsthetic condition, and tolerates the use of the hooked soft palate retractor. It is not very unpleasant for the patient, nor very difficult for the physician to prove the presence of a tumor, by passing the index finger up behind the soft palate, and thus examine the growth. In this way the density of the tumor can be determined.

**984. Treatment.** After the patient has been treated for the chronic catarrhal inflammation for about a week or ten days, so as to reduce the inflammation to some extent, and to make an operation less painful, and more certain of success, I remove the tumor or tumors in the following manner:

If the growths are not very large, I grasp one of them with the pharyngo-nasal forceps, as described in topic **670**. If the cocaine mixture is applied, the pain is insignificant. I usually retain the compression, until the substance between the blades is completely squeezed flat. The time required for this will be according to the size of the tumor, usually, half an hour suffices. After the instrument is well fastened on the growth, I allow the



patient to hold the outer end of the forceps, as it will be far less disagreeable to him, than if held by any one else. There is not the least hemorrhage. The patient is treated for his catarrhal inflammation the next day as usual. After about a week has elapsed, and the growth does not seem to rapidly decrease, I grasp it again, in the same manner as before. This is repeated once a week or ten days, until all the growth has disappeared. None of the growth having been torn away, not a drop of blood is shed, and the amount of scar tissue should not be greater than the fourth of the diameter of the tumor in the first place.

The result of the squeezing is to cause the absorption of the growth, without leaving a large cicatricial surface. I have not torn or cut one of these growths, since 1876; the crushing method has always been successful.

**985. Fibromata of the pharyngo-nasal cavity.**

These growths have their origin from the fibrous tissue covering the vault of the cavity. The hardness of these tumors, enable one to distinguish them from a gelatinous polypus. Their growth is rapid after they attain sufficient size to interfere with respiration.

**985 (a). Treatment.** Their removal by surgical means is no small job. A loop of platinum, heated by a good galvanic battery, is the surest and best. Great dexterity is required to pass the wire around the tumor. This has already been discussed in topic 862. The usual course of treatment by the spray producers should follow the removal of the tumor.

**986. Gelatinous polypi.** These are removed by evulsion, by means of the post nasal forceps, as described in topic 858 (a).

**987. Abscesses.** No doubt these abscesses are quite common, but are not recognized either during life, or after death. In 1867, while in the dissecting rooms of the St. Louis Medical College, I made an antero-posterior section of the head of a subject, and found that death



must have occurred from one of these abscesses. As the body came from the city hospital, I inquired concerning the symptoms before death, and was astonished to learn that death was attributed to peritonitis. Patients who have had abscess in the pharyngo-nasal cavity, are not very rare, but far from common. I have treated, certainly fifty persons who had evidences of having had an abscess, and in most, I was enabled by what I saw, to state that they had undergone sickness so severe, that their life had been despaired of. Such cases have always had a narrow escape with their lives, because of the proximity of a large number of the most important nerves of the organism. This is a subject that will, in a few years, be far more thoroughly investigated than it is at the present day.

**988. Stenosis of the pharyngo-nasal cavity**

This takes place, when the soft palate is caused to adhere to the posterior wall of the pharynx, by cicatricial contraction, following either ulceration and destruction of the mucous membrane, by nitrate of silver, or other caustic means. Every case of this kind that I have seen, was due to the application of nitrate of silver in solution, and in the solid form. In eleven of sixteen cases seen, the caustic was applied to cure a supposed ulcerated surface on the posterior wall of the pharynx. The cause of this supposition, was the presence of a large crust of inspissated muco-purulent matter, lodged on the posterior wall of the pharynx. These eleven cases of incurable stenosis were non-syphilitic, and the victims of malpractice; the remaining five cases had constitutional disease, but I do not think the stenosis would have occurred if caustic applications had not been made.

In the sixteen cases the stenosis was not complete in any of them. Each patient had a small opening through the velum, from a sixteenth to a fourth of an inch in diameter. The voice, in each instance, was more or less nasal. Fearing there might be a complete closure of the opening in one of these cases, I inserted a rubber eyelet:



to prevent it, this was worn for three years. Three years after its removal, the patient reported that she felt better without it, as the opening was large enough to allow unimpeded respiration.

**990. Surgical interference** should be resorted to, only when free respiration cannot be carried on through the nasal passages, as these cavities will not remain in a healthy condition without the continual passage of air through them. If surgical aid is needed, I would recommend that a slit be made latterly across the soft palate, about one quarter of an inch from the posterior wall of the pharynx, and that a soft rubber eyelet, with large flanges be immediately inserted in the opening. The flanges must be sufficiently large to prevent its being pushed into the pharyngo-nasal cavity on deglutition, or to allow its falling into the throat.

I have two patients wearing such an eyelet. The effect of which is to allow the inflammation in the nasal passages to be reduced to a minimum; free them from continual headache; and a disagreeable nasal tone of voice, and greatly improve the hearing.

**991. Change of eyelets.** A change will have to be made about two times each year, as the continual immersion of the eyelet in the secretions of the pharyngo-nasal cavity crystalizes the rubber, and for fear that it might drop into the larynx, or be forced upward, a new one should be inserted. This is easily performed. The eyelet is secured by a thread, so that if it should slip from the surgeons finger, it will not fall into the larynx. Holding the free end of the thread in the left hand, the eyelet is placed on the top of the index finger, passed into the fauces and pushed up into its place. The thread is afterward divided by a scissors and withdrawn. If the eyelet is too large, the tone imparted to the voice of the patient will be nasal, resembling the tone of the voice when the nasal passages are occluded. A still greater disability will also occur upon the deglutition of food, as a part of it will be pushed into the pharyngo-nasal cavity.



**992.** Cutting out a piece of the velum, so as to make the opening larger, and thus save the insertion of an eyelet, will not prevent the cicatrized tissue from again contracting the opening to its former dimensions.

## CHAPTER VI.

### DISEASES OF THE VELUM PALATI AND UVULA.

**993. VELITIS PALATI; Inflammation of the velum palati.** We have the term palatitis, which denotes inflammation of the palate, but this does not designate whether the soft or hard palate is meant. The term *velitis palati* is required to designate inflammation of the soft palate.

In many patients, suffering from this complaint, the soft palate becomes so debilitated that it cannot perform its functions perfectly. The first evidences of this condition, is the indistinct pronunciation of those words, that depend upon the soft palate for distinctness of enunciation. Such patients cannot pronounce the word "what" with sufficient force to allow a complete inflation of the Eustachian tubes and middle ears. As the disability increases, small particles of bread, or cracker or potato will pass up behind the soft palate, and either lodge in the pharyngo-nasal space, or become crowded into one of the posterior nares.

**994.** I had a patient, a girl of thirteen years of age, daughter of Dr. S. Horine, of this state, who, while masticating a peanut, crowded a piece of it into the right posterior nares, where it remained fully six months, occasioning a peculiar spasmodic cough, resembling a sneeze and cough combined. She made this sneeze-cough about twenty-five times a minute while awake. There was no difficulty in obtaining a good view of the pharyngo-nasal



cavity, as the soft palate, while it did occasionally rise, hung pendant most of the time. On the first examination I observed a small, white substance, it proved to be a piece of soda cracker. It was lodged in the neighborhood of the right Eustachian tube. The passage of a probe, with a cup-shaped end, one-sixth of an inch in diameter, through the right nostril, dislodged the cracker, and relieved the patient of the sneeze-cough. She was treated for chronic inflammation of the nasal and pharyngo-nasal cavities for two weeks, when I again passed the probe through the same nostril. It came in contact with a hard substance, which at first defied removal. Persistent efforts were followed by volleys of the spasmodic sneeze-cough. At the next visit, on the day following, I succeeded in dislodging the piece of peanut. There was a copious discharge of blood and mucous, but the violence of the peculiar cough was much lessened, but never entirely disappeared. She was under my care for a few weeks longer, and removed to some friends in the country, when she died. Her death was a sudden one, and occurred while asleep in bed with another little girl. On the pillow, upon which her head rested, was found a large quantity of blood and pus. The cause of her death was not ascertained, no post mortem examination being made.

995. I had another patient whose soft palate allowed a piece of gristle of beef to pass up behind it, where it remained for several days before occasioning any inconvenience. He first felt pain, then an excessive noise in the ear. He had not forgotten the passage of the piece of gristle, and directed me to look for it. There was no difficulty in seeing or removing it. Relief of the symptoms followed the removal. The late Dr. J. T. Hodgen presented before the St. Louis Medical Society, the soft palate and parts that compose the pharyngo-nasal cavity, having a five cent nickel wedged in the mouth of the Eustachian tube. The nickel had undoubtedly been lodged there some time before death, and must have occasioned serious inconvenience.



It may appear strange, but fluids are less liable to pass up behind the debilitated velum than are solids.

**996. When complete paralysis** takes place, some of all kinds of food, is apt to find its way into the passages behind and above the soft palate.

**997.** From what has been said concerning the functions of the soft palate, uvula, and azygos prominence, it would be expected that in paralysis of this valve-like organ, the voice would be materially affected, and such is the case in every instance. Such patients speak with a marked nasal tone, and some words they cannot pronounce at all. They cannot spit unless they close their nostrils with their handkerchief or their thumb and finger.

**998. Treatment.** No special treatment is required if the disability is slight, as it is usually relieved upon successful treatment of the originating complaint, the chronic catarrhal inflammation in the nasal and pharyngo-nasal cavities. If recovery does not commence after the subsidence of the inflammation, then the galvanic current will be useful: the cathode being applied alternately to the upper and under surface of the soft palate, while the anode is either placed on the hand or back of the neck of the patient. In most of the severe cases, but little can be done, as it is nearly always accompanied by other and severer complaints.

**999. Tumors.** These are not very frequently seen, and are but small and easily removed. The last four that came under my observation, were located on the posterior surface, not more than a quarter of an inch from the lower border, all four were on the left side. I removed them by crushing them with the pharyngo-nasal forceps, figure 118. After grasping the tumor, I held it for a few minutes, then gave the handle of the forceps into the right hand of the patient, and told him to take a seat in the parlor for half an hour, at the end of which time I removed the forceps. The next day, the piece of flesh that formed the tumor, was covered with muco-purulent matter. The parts were sprayed as usual.



At the end of four days, all signs of the tumor had disappeared.

**1000. DISEASES OF THE UVULA.** This little organ is frequently acutely inflamed, and soon becomes oedematous. The part of the uvula that contains the most serum is its lower portion. In this case a small vertical slit will allow the escape of the fluid. If the whole of the uvula and a part of the soft palate is oedematous, a number of vertical slits should be made. If the mucous membrane is separated from the muscular portion and forms a small rounded extremity, and this is at least a quarter of an inch in length, this bulbous portion, may with benefit, be removed by the uvula scissors, topic 879. The cut should be made horizontally, so as to leave as small a cicatricial surface as possible.

**1001.** As this condition of the uvula is but a sequence of an inflammation of the pharyngo-nasal cavity the treatment of this cavity should at once be instituted.

**1002. Excision of the uvula.** The uvula is very frequently entirely cut off, to the injury of the voice. If a patient states that he has a tickling cough, his physician looks into his throat, sees an elongated uvula, and immediately makes his diagnosis, and states that the uvula is the offender. He tells the sufferer that this elongated organ, by its continual irritation on the base of the tongue, etc., causes the tickling cough. I very much doubt that a uvula one inch in length, would cause a tickling in the throat, with or without a cough. Tickling is not a symptom of an elongated uvula, as there is no time, even in the normal throat, that it does touch the base of the tongue, except during the phonation of sounds that come from the mouth alone. It also touches the posterior wall of the pharynx, the pharyngo-nasal cavity, and very frequently the epiglottis itself. This being the case, how can it cause a tickling? Not one uvula in a hundred, that is now amputated in its entire length, should be touched by an instrument.

**1003. Symptoms of elongation.** The only symp-



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**1003. Symptoms of elongation.** The only symp-



tom is that of a pulling on the soft palate at the instant of deglutition, which is sometimes followed by retching. To produce this symptom, the uvula must be nearly one and one-half inches long.

**1004. Operation.** When an operation is necessary, the organ should be made to resemble the natural shape and size as much as possible, and if possible, no portion of the muscles composing the uvula, should be excised. If the organ is not too large in diameter, so as to make too large a scar on its lower portion, the uvula scissors and vulcellum forceps should be used, as described in topic 879. After the amputation, the case is treated as usual.

**1005. Tumors.** The growths that spring from this small organ are never very large, nor do they create much inconvenience. Their removal is easily accomplished by a pair of forceps to grasp the tumor, and a pair of scissors to clip it off. Frequently, no hemorrhage follows the operation, as the tumor usually hangs by a slender pedicel.



## SECTION II.

### Catarrhal Diseases of the Pharynx, Tonsils, Epiglottis, Larynx and Lower Air Passages.

These diseases are all secondary to nasal inflammation; but as they occur so often, and so frequently assume an independent form, they will require separate mention.



## CHAPTER VII.

### DISEASES OF THE PHARYNX, TONSILS AND EPIGLOTTIS.

**1006. CHRONIC INFLAMMATION OF THE PHARYNX.** This is always secondary to inflammation of the pharyngo-nasal cavity, and the inflammation of this cavity is always secondary to inflammation of the nasal cavities. The appearance of the surface differs according to the age of the patient and according to his habits. The use of tobacco and stimulants will induce a darker red condition than will be seen in the throat of female patients of equal age. The temperament will also influence the appearance of the fauces. A patient with light fine hair will have a more severe inflammation and will require longer time to recover, than a patient with black, coarse hair. I have not yet seen an albinist who did not have a severe inflammation of the pharynx.

**1007.** Up to the thirtieth year the blood vessels are nearly straight, and are not very numerous, that is, in cases of medium severity. From this age to the fortieth year, the bloodvessels are usually double their former size and increased in number; while with those much over forty years of age, they are quite tortuous and varicose.

**1008.** The secretion also raises according to the age of the patient. The younger the patient the greater the quantity of the secretion, and the older, the less the quantity. As the secretion lessens in quantity, the purulent quality lessens also.

**1009.** No special treatment is required, even when



there is pain or other discomfort. The treatment required for the originating inflammation will relieve all symptoms.

**1010. Follicular pharyngitis; granular fauces.** To the ease with which these growths may be seen, and to many physicians inability to see other objective signs of inflammatory action that will account for the patients complaint, may probably be ascribed some of the reasons for their attempted removal by various mechanical means. Every attempt of this kind always results in failure both as regard to the removal, and the relief of the subjective symptoms. I take this as the strongest evidence that the condition of the mucous membrane here mentioned is purely a sequence of an inflammation located higher in the respiratory tract.

**1011. These follicles are as harmless as the wart on the patient's face;** of course they interfere, to a small degree, with the function of the mucous membrane, but any kind of mechanical removal will be far more injurious than allowing them to remain. The treatment of the originating inflammation is the only rational method. This removes the subjective sensations complained of, and reduces the size and number of follicles in a much less time than can be done by caustics, knives, forceps, etc. Treatment of these follicles by these means, is as unscientific as the treatment of the pain in the little finger made sore by an injury on the elbow.

**1012. ABSCESS OF THE PHARYNX.** This is not a very common affection. I have seen but one case who had an abscess of the pharynx. When first seen the swelling in the pharynx was almost large enough to completely fill the breathing space at the base of the tongue. There were severe constitutional disturbances before it was opened. Besides the great difficulty in breathing he had protracted attacks of severe palpitation of the heart and was continually bathed in profuse perspiration. During these attacks of palpitation his pulse became quite slow, frequently going as low as 50 per minute.



His respirations were frequently not more than 14 per minute. The inspiration being of a sighing character. He was unable to lie down in bed for nearly five days.

**1013.** As a preliminary step I introduced a hypodermic needle into the most protruding part of the tumor and withdrew a portion of its contents, and found it to be composed of a glairy mucus, slightly milky in color and slightly colored with blood. After this I opened the abscess with a small bistoury. The contents measured nearly two ounces.

The patient had been unable to make the least sound for nearly two weeks. This, together with the difficulty of breathing, and all other symptoms mentioned, were relieved in three days after the opening of the abscess.

**1014. ULCERATION OF THE PHARYNX.** This does not require any special description and is found most of the time in syphilitic patients. It should not be forgotten that ulcerations in this locality may be produced by caustic applications made to supposed ulcers on the pharynx.

**1015. Local treatment.** The patient should receive the usual local applications commencing with the No. 4, then the Nos. 5 and 2. No astringents should be employed. The ulcer should be thoroughly cleansed with spray producer No. 1; using simple vaseline made as hot as the patient can bear it; employing an air pressure of 10 lbs. to the square inch. Two or more sprays full may be required to thoroughly cleanse every portion of the ulcer. Then the instrument should be again filled with vaseline and the usual quantity of eucalyptol mixture.

**1016.** These applications should be made daily until the ulcer is cicatrized, then every other day for two or three weeks, and so on as in the usual course.

**1017. Constitutional treatment.** This consists in the administration of quinine and iodide of potassium. I give the latter remedy as the patients stomachs can bear it, commencing with 5 grains three times a day and in-



g it by 5 grains each day until pain or disagreeable sensations are experienced in the stomach or back. As these sensations are felt, I direct the patient to ease the dose by 5 grains and continue in taking quantity for about two weeks. I find iodide of am a very valuable remedy in non-syphilitic cases describe it as above stated.

**18. TUMORS OF THE PHARYNX.** The few that I have seen had these growths about a quarter inch in diameter and about the same in length. One patient had three tumors; one large and two smaller. In no instance did these growths inconvenience the patient in phonation or deglutition. Their removal was effected by the wire ecraser and as the operation was slowly performed there was no hemorrhage following the removal.

**19. Hyperaesthesia of the pharynx.** This complaint is observed to occur upon the supervention of acute inflammation following a chronic inflammation. Sometimes the effect of eating a crust of bread will excruciating pain that will last for hours. This complaint must not be confounded with that of hyper-sensibility so frequently seen in patients who are quite

**20. The treatment** is to relieve the acute inflammation by local and constitutional remedies. Three or four drops of the *tincture of aconite root* taken in a little water and swallowed slowly, is pretty sure of relieving the suffering in a few hours.

**21. An anæsthetic condition of the pharynx** requires the patient to refrain from swallowing solid or dry food as the particles are apt to lodge in that portion of the pharynx just above the vocal cords, or between the epiglottis and the tongue. I have seen small pieces of food lodged above the vocal cords, and not give the patient any inconvenience.

**22. This complaint** is frequently seen in hysterical patients, and has very alarming symptoms.



**1023.** The treatment of the accompanying inflammation and the application of the faradic current, both in side and outside, along with a brisk cathartic, will usually relieve all cases of peripheral origin, while those of central origin will require a long course, but a guarded prognosis must be given.

**1024.** Paralysis of the Pharynx frequently accompanies a paralysis of the pharyngo-nasal cavity and is due to the same cause, and is relieved by the same method of treatment. If this condition is accompanied with a paralysis of the tongue and lips, then a central cause may be diagnosed. In this case there will be dysphasia and an over flow of saliva from the lips. Under these circumstances the prognosis is very unfavorable.

**1025.** The treatment will depend upon the concomitant local symptoms, Electricity both local and general will be indicated. The bowels and kidneys should be caused to act quite freely. Fluid food will be the safest and easiest passed into the stomach. In cases in which the ability to swallow is lost, then the stomach tube will have to be passed into the stomach. A soft rubber tube is by far the best stomach tube. The patient can soon learn to pass the tube himself, and then to pour the liquid food into a funnel which is inserted into the outer end of the tube.

**1026. HYPERPLASTIC TONSILS.** These growths are a sequence of inflammation, in the nasal and pharyngo-nasal cavities. The inflammation of the tonsils is just sufficient to cause a rapid growth of tissues around the enlarged blood-vessels. As soon as the growth around each blood-vessel has increased to such an extent that the vessel itself is encroached upon by the growth, so that the blood supply to the hyperplastic tissue is not nourished as formerly, then atrophy of the growth begins to take place. A result that is favorably looked upon by both, physician and patient. It is seen that if the excessive flow of blood to the part is lessened — and it makes no difference if the lessening is accomplished by a



mechanical constringence of the vessels by the growths surrounding them, or by a lessening if the inflammation -- the disappearance of the proliferous tissue takes place. Now it is this assistance that is to be given and made more rapid by a surgical operation.

**1027. Removal of the Hyperplasia.** After the patient has been treated for one or two weeks and the enlarged tonsil proves to be a hyperplasia, a piece of its outer surface should be cut off. To excise a tonsil without pulvinary treatment would not be good practice, for two very good reasons. First: The throat is in a very inflamed condition so that the excision of the tonsil would be followed by considerable hemorrhage, and the wound would be slow in healing, because of the presence of the inflammation spoken of. Second: The preliminary treatment will demonstrate whether the enlarged tonsil is a swollen organ, or one effected with hyperplasia of its tissues. I usually operate as soon -- after a weeks treatment -- as I observe that the tonsil is not decreasing in size.

**1028. The instruments** with which I prefer to operate are a probe-pointed bistory and a four toothed vulsella. If the patient is quite young or cannot be induced to remain still during the operation, I use Matten's tonsiltome (677). In this case the child is placed on an assistants lap, and the hands and lower extremities confined so as to prevent interference. I then take the tongue depressor, depress the tongue and introduce the instrument and excise the tonsil.

**1029. In patients over ten years of age,** I request them to depress the tongue with the tongue depressor. I then grasp the lower portion of the tonsil with the vulsella -- having first applied cocaine -- raise it and pass the back of my bistory along the tongue with its edge upward, and make the cut upward in a circular direction, near to but avoiding the arches of the velum. If the tonsil is large and flat I take a very thin portion of it off. I endeavor to cut off the tops of the enlarged glands, so that the contraction that follows the cicatrization of the



wound will cause the absorption of the remaining hyaline plastic portion of the tonsil.

**1030.** As the pain from the excision is not very great, I do not administer an anesthetic, nor would I recommend it. I have, immediately before operating, sprayed the parts with cocaine and vaseline, one drachm of the former to an ounce of the latter. I do not like the after effects of the cocaine, although the time being it lessened the pain occasioned by grasping the tonsil with the vulsella. I have also tried the effect of a solution of carbolic acid, but the acid always induces a congestion that interferes with the healing of the wound.

**1031.** For several days after the operation the patient should eat soft and light food. If the bowels are constipated a laxative should be given. The throat and tonsils should be sprayed at least once each day until the cut surfaces are healed. I have never yet required any other treatment than this after the operation. In three or four days every vestige of the temporary pain occasioned by the excision will have passed off. In one or two more days the wounds will show no evidences of suppuration.

**1032. CYSTS OF THE TONSILS.** Not infrequently the follicles of an enlarged tonsil become so full of creamy inspissated mass of muco-pus of a cheesy consistency, and foetid, that it can be seen protruding from the side of the tonsil. If the throat is a little sore it may be taken for diphtheretic exudation. Sometimes instead of noticing it in the tonsil, the patient may, after an effort at coughing, dislodge it and it be thrown by force of the breath out of the mouth, when such is the case, the secretion is in the form of a small round ball—a little smaller than a common pea—and may roll on the floor. As these periodical collections afford almost no annoyance to the patient, the physician is rarely called upon to relieve them, but should treatment be necessary, cauterizing the follicle—the old remedy recommended—from which the ball comes, will not arrest the deposit of the secretion.



for the formation of another ball.

**1033. Method of removal.** The only sure remedy, is to remove a thin slice from the tonsil. This will cut off that portion of the follicle that forms an almost shut sack, and leave the secretion free to flow away from the tonsil, instead of its being pent up, until the accumulation is so great that the sack cannot hold it.

The instruments recommended are the **vulsella** and **bistoury**, mentioned in topic **1029**. Subsequent treatment by spray producers, after an excision of the tonsils, will be required.

**1034. Cretaceous collections.** Sometimes, instead of these cheesy balls, the contents of the follicles will be a concretion of chalky material. In this case the tonsil will require excision. Before this is done, the chalky balls should be removed, as they will impede the action of the bistoury.

**1035.** The **scarification** of enlarged tonsils is not recommended, nor is the use of the **London** or **Vienna** paste. The scarification does not relieve the tonsil of anything but a small quantity of blood, to be followed by cicatrization, thus tending to a greater liability to Abscess formation.

**1036. ABSCESS OF THE TONSIL.** This is usually due to acute inflammation of an enlarged tonsil. The openings of the tonsil follicles are closed by excessive swelling; the retention of the secretion within the follicles increases the inflammation, and an abscess is the result. This complaint is nearly always ushered on by constitutional disturbances, such as slight rigors or chilly sensations, followed by fever and increased pulse. Sometimes both tonsils become affected, in which case respiration is greatly interfered with. In 1874, I had a patient, a girl of 11 years of age, whose tonsils were thus affected. An abscess had not yet formed in either tonsil; but in hopes of reducing their size I opened both of them with a bistoury, cutting each a little over a half an inch in depth. As the child's life was in danger from



asphyxia. I recommended the mother to have a piece of the left tonsil this being the larger of the two—excised, but we could not get the child's consent. In about four hours after, and while she was walking about the room, she suddenly turned to her mother, who was near her, made an exclamation, and fell dead in her arms.

It is my opinion that this death occurred as much from sudden paralysis of the heart, due to the tonsillitis, as from impeded respiration. Nerves from the same cervical ganglion are distributed to the blood vessels of the tonsil, and to the muscles of the heart.

**1037. Treatment.** The local applications should be made to the enlarged tonsil, in the endeavor to reduce it before the abscess is formed. These applications consist in the use of vaseline and eucalyptol, using about four times the quantity of eucalyptol mixture, as is done in chronic cases. The spray being made as hot as the patient can bear it. As there is always more or less constitutional disturbance, four drops of the tincture of aconite root should be given at once, and two drops every three hours afterward until the pulse is reduced to nearly the normal. A brisk cathartic should be administered, and 10 to 15 grains of quinine taken at bed time. If the feet are at all cold, they should be immersed in hot water. The neck should be anointed plentifully with vaseline, and a cap should be worn day and night. This is the general outline of the course that I have found to be successful.

**1038. Operation** I have not yet in my practice found it necessary to give an anæsthetic to open an abscess in the tonsil. I use a sharp-pointed straight bistoury. If the patient is not able to depress his own tongue with the tongue depressor, I have an assistant do so. I then pass in the bistoury with the cutting edge to the median line of the mouth, and slowly push the knife into the most projecting portion of the tonsil; the point of the bistoury entering the tonsil half to



three quarters of an inch away from the side of the mouth, and about a quarter of an inch below the soft palate. If pus flows from the edge of the knife, I cut to the outside of the tonsil, that is, towards the uvula, leaving a gaping wound about a quarter of an inch wide. From this the pus flows at once, and at once the patient experiences relief.

As soon as the blood has ceased to flow I spray warm vaseline with the usual quantity of eucalyptol mixture into the wound, afterward using Nos. 4 and 5 with the same mixture.

The constitutional treatment, recommended in topic 107, should be continued as required.

**1039. EPIGLOTTIDITIS.** Inflammation of the epiglottis. Most of the diseases of this cartilage occur during infancy and adult age. I have seen the results only of the disease during infancy. These are seen during life and show themselves by the peculiar curve given to the free, upper extremity of the epiglottis.

**1040. Oedema of the epiglottis** is the most frequent disease that affects this organ. Its cause is excessive inflammation of the pharynx or larynx or both. If the swelling is so great as to impede respiration, a bent, blunt pointed bistory had better be used to open the oedematous swelling. In performing this operation of the incision of the epiglottis, I pass my finger into the patient's mouth until I felt the swollen organ and at once pass the bistory along side of my finger and make two or three nicks in the upper edge of the epiglottis. This operation has to be performed quickly, and, as the patient is under great dread of suffocation, the operator must resolutely pass his finger to the epiglottis and follow it instantly by the bistory. The length of time required for the operation must not be beyond 5 seconds. If the patient breathes easier after the use of the bistory he is safe from suffocation. If he does not breathe easier, either laryngotomy or tracheotomy will have to be performed



**1041. Laryngotomy.** This is performed by opening the crico-thyroid membrane. This is comparatively easily found, located about three-quarters of an inch below the pomum adami. A sharp pointed bistory can be thrust into it as soon as located by the index finger of the left hand. As soon as the bistory is within the larynx it should be turned slightly to one side and pressed downward. At once the air will be drawn in, making a whistling sound. Accompanying this whistling entrance of the air will be a peculiar cough occasioned by the blood from the wounded crico-thyroid membrane. As soon as the patient has recovered from his cyanotic condition, there will then be found plenty of time to pass in two laryngotomy hooks, that will hold the lips of the wound apart sufficiently to allow free respiration through the opening.

**1042. Laryngotomy Hooks.** These hooks can be improvised from a couple of hair pins, the loop-end of which may be bent to right angle, or better, bent so as to be slightly hooked, which will tend to hold the instruments into the opening in the larynx. The sharp points of the hair pins should be bent toward each other, so that a piece of tape can be fastened to it to be tied around the neck. I prefer to use these hooks to a tube, as expectoration is very much freer through the opening thus held open than through any kind a tracheal tube.

**1042. (a).** After the patient has somewhat recovered, the pharyngo-nasal and nasal cavities, the pharynx and larynx should all be treated most thoroughly with vaseline and eucalyptol mixture in the usual proportions. In the spray producers Nos. 6, 7 and 8 in addition to the mixture just named, about 10 grains of the aconite mixture should be sprayed on the surfaces.

Constitutional treatment will be required.

**1043. Tracheotomy.** As this operation is much more difficult and lengthy than the one described in topic 1041, it should not be resorted to in cases of threatened



asphyxia. For such I prefer laryngotomy. On the other hand if the patient is in no great stress for air and especially if the laryngeal trouble is thought to be long in recovering, tracheotomy had better be performed.

1044. Quite a number of methods have been devised for opening the trachea; such as passing a large curved needle down into the trachea in a line vertical to the body, so as to include one or two of the rings. This needle to be armed with a platinum wire, the two extremities of which are to be attached to a galvano-cautery battery and thus the enclosed integument, tissues and rings are cut through, avoiding hemorrhage.

1045. I prefer to open the trachea with the knife. If the patient is getting sufficient air to sustain life, I do not divide rings until all of the hemorrhage from the previous cutting has ceased. If possible I put the patient to bed and have him lie on his right side before opening the trachea. I make this opening in the following manner: I take a long slender self-retaining vulsella, I grasp, with the forceps, the ring I intend to cut and with a sharp pointed, narrow bistoury divide the ring on each side of the forceps, by a circular sweep with the knife, taking out about a quarter of an inch of the cartilage. In performing this cutting process, the bistoury makes a complete circle, a little over one-quarter of an inch in diameter. This being performed as quickly as possible, occupying not more than four seconds, the patient is turned over on his stomach with his head and left shoulder out of the bed, these being held by an assistant. As soon as the piece of ring is taken out, the patient is instantly seized with a severe cough, the result of the inflow of blood and air into the trachea. The advantage of placing the patient in the position described are manifold: First, he is in bed where he can best rest and is less liable to take cold and his position is such as to allow the blood from the tracheal wound to escape at once, as well as to easily get rid of his expectorations, which, for



a few hours, will be very profuse, and lastly when the coughing and expectoration have ceased he is in a position to at once fall asleep.

**1046.** Before he is allowed to go to sleep, the whole of the wound should be well sprayed with vaseline and eucalyptol mixture, using equal parts of each in spray producer No. 1. The usual local and constitutional treatment should be carried on for several weeks.

#### **1047. ULCERATION OF THE EPIGLOTTIS**

This is usually one of the sequences of constitutional disease, yet it sometimes occurs from the application of caustics and the galvano-cautery. The local treatment of this is simple; namely, the application of the spray of equal parts of the eucalyptol mixture and vaseline made by the spray producer No. 7, or the instrument that will throw the stream directly upon the ulcerated surface, that may be either No. 6 or 8.

**1048.** The usual method of the treatment of the complaint is the application of nitrate of silver in various strengths, but the application of the vaseline as above mentioned will close the ulceration much quicker than any caustic I have used or seen used.

**1049. Comparative value of nitrate of silver and vaseline spray.** In the fall of the year 1883, Dr. T. L. P—— a student of mine, proposed to test the healing qualities of nitrate of silver and the spray producer as above mentioned, upon the epiglottis of a syphilitic patient under our care. The test was, that he should take one side of the epiglottis and treat it, and I, the other side. He made applications of nitrate of silver to the right side and I sprayed about 3 drachms of equal parts of vaseline and eucalyptol mixture to the other side, this was made as hot as the patient could bear it, and blown upon the ulcer with an air pressure of 10 lbs. to the square inch. This course was pursued for three days before this time had elapsed Dr. P. had surrendered to nitrate of silver method, as the ulceration on the right



side of the epiglottis continued to eat the organ away. The patient was treated constitutionally in the mean time. The patient made a good recovery but lost more of his epiglottis than he should have done, in proving the inferiority of the application of nitrate of silver.

**1050. Tumors of the epiglottis.** These rarely occur, except in patients effected with constitutional disease. I distinctly recollect having two patients, each of whom had a small tumor on the upper edge of the epiglottis. I placed the patients under constitutional treatment and treated them locally in the nasal and pharyngo-nasal cavities for about two weeks, at the end of this time the tumors were so greatly reduced—their primary size not being greater than twice the diameter of a pins head—that I concluded to give them further time before attempting their removal. As the patients recovered from their catarrhal complaint the tumors disappeared entirely without any special interference.

**1050. (a).** If after the patient has been treated for a week or two and the tumors do not become smaller I grasp them with the forceps, give them a good squeeze and remove the instrument leaving nature to complete the cure. I have not yet had to operate the second time for the removal of such tumors.



## CHAPTER VIII.

### CATARRHAL DISEASES OF THE LARYNX, TRACHEA AND BRONCHIAL TUBES.

**1051. LARYNGITIS.** Chronic inflammation of the **Larynx**. The prominent symptom of this complaint is that of tickling in the neighborhood of the vocal cord followed by a sensation as of an adhering, tenacious secretion.

At this stage the patient will frequently, but always involuntarily, place the soft palate against the posterior wall of the pharynx, forcibly draw air through the nostrils, and thus dislodge a part of the accumulated secretion from the pharyngo-nasal cavity into the pharynx and then hawk it up and expel it from the mouth. The relief following this effort will be just in proportion to the quantity removed from the cavity above. Frequently the effort to draw the secretion down from behind the velum will prove unsuccessful; then the irritation caused by the accumulated matter, lodged in the pharyngo-nasal cavity will be sufficient to call for aid from the pneumogastric nerve, which sends branches to the mucous membrane and muscles of this cavity. This nerve will cause contraction of the superior constrictors, as well as cause an increased outflow of fresh mucus, which may, and does in the majority of instances, remove the offending matter. But the superior constrictors cannot act alone, for the reason that the nerve that causes them to contract also produces marked effects upon the stomach, resulting in retching and sometimes actual vomiting. This sickness of the stomach is very disagreeable, and, together with frequent coughing, causes pain and distress in the chest; which in turn, fills the patient with anxiety for fear he has serious lung trouble.

**1051. (a).** If the muco-pus in the pharyngo-nasal cavity is not removed, the patient will continue



cough for several days without raising the least quantity of secretion from the larynx. After this coughing and hawking is continued for a few weeks, the exertion of the larynx will cause sufficient irritation to give rise to the flow of a tough, frothy mucus of a whitish color, the irritation not being of long enough duration to occasion an outflow of muco-pus. It is not an uncommon occurrence for patients to expectorate a **jelly-like, dirty colored sputa**, which is frequently expelled from the mouth unaltered. The coloring matter of this expectoration is not blood, or any of its constituents, as supposed by some authorities; but is merely soot and dust inhaled during the day. This is easily proven by microscopic examination.

**1052. Vocal disability.** After a time, hoarseness supervenes, then the discharge becomes more copious. If the patient has been using one of the many steam spray producers, found in our instrument stores, the expectoration, hoarseness, etc., will soon be greatly increased. Not infrequently, I have observed, after such a course of treatment, streaks of blood in the muco-purulent secretion coughed up; when this is the case the anxiety of the patient will be greatly increased.

**1053. The voice soon becomes affected**, and grows husky or hoarse, especially after reading or speaking twenty or thirty minutes. If persistent in exercising it, excessive weariness will be experienced. Some patients have become so weary in the use of the vocal cord that they even tire in hearing others speak.

Still the voice cannot be taken as a guide to determine the extent to which the larynx is implicated; for some persons who are hoarse at the commencement of a speech, lose this symptom as they proceed.

**1054. Nervous complications.** Frequently, preceding and accompanying these symptoms, are manifestations of more or less disturbance of the nervous system, shown by a tendency to remain awake, should even a slight cause disturb sleep. The sensation of dryness in



the throat, occasioned by the patient being compelled to breathe through the mouth—the nasal passages filling, by the swelling of the mucous membrane, as soon as the recumbent position is assumed—is particularly noticeable. This is relieved by attempts at expectoration.

**1055. Spasm of the glottis.** Sometimes the patient is awakened very suddenly from a sound sleep by a suffocating sensation. Perhaps only sufficient to disturb slumber, or it may be so severe as to cause him to jump from his bed, and grasp at any object to support himself, until he recovers his breath. There may be expected a recurrence of these spasms when a cold in the head has been contracted.

This is the condition of the patient when he consults his physician, desiring relief for his throat and lung symptoms as soon as possible. The head symptoms are seldom made prominent.

**1056. Observations made during the last twenty-two years** have taught me that the inflammation which cause tickling, and the sensation of mucus in the larynx, is really in the pharyngo-nasal cavity, and not in the larynx, as it is taught by all laryngologists. This can be proven both by an inspection, and by treatment of the parts. The pharyngeal mirror will reveal a little inflammation in the larynx, but no mucus. Now, if the reflector is turned toward the pharyngo-nasal cavity, excessive inflammation will be observed, and also a large accumulation of tough, adhering muco-purulent secretion. If this secretion be removed by mild means, and a soothing application be made to the irritated and inflamed surface, the symptoms in the larynx will at once subside, to be again experienced only on its reaccumulation. Another evidence I have is, that four-fifths of the patients on whom the spray, from producer No. 4, is applied, at once voluntarily say, "that (meaning the spray) went right to the sore place in my throat;" although not a drop was sent into or went into the throat,



all going in the opposite direction; i. e., up from the throat into the pharyngo-nasal cavity. Again, should a spray from the producer No. 7 be thrown down into the larynx, little or no relief will follow the application, except in cases where the throat has been irritated by the excessive coughing, occasioned by the lodged secretion in the pharyngo-nasal cavity.

**1057. Reflex action.** Hundreds of times have I made application of a mild remedy into the anterior nares that caused a cough, sometimes spasmodic, although when thrown by the same spray into the larynx no cough was produced. In several cases I have seen complete aphonia during an application of the spray of vaseline alone into the nose. With some patients, the irritation produced by the air alone had the same effect, the vocal disability, in each case, disappearing as soon as the instrument was removed from the nose; showing plainly that irritation in the larynx can be produced by irritating the nasal cavity.

**1058. Aural reflex.** I have also had patients who commenced coughing as soon as the ear speculum was introduced into the auditory canal; and one who—for more than two years—lost his voice for fully one minute on pulling the pinna of his ear. During his inability to speak aloud, he had a smothered kind of cough.

**1059. If the larynx** can be thus affected by manipulations of these organs and by applications to them in this way, is it not to be expected that a long continued inflammation in the pharyngo-nasal cavity will, in time, also affect the vocal cavity? I think I can prove, by inspection and treatment, that fully nine-tenths of the coughs now being treated with cod liver oil, etc.,—which will prove as beneficial for the foot as for the throat—and with the sponge, probang and brush being thrust into the larynx, as I saw done in London, Paris, Berlin, Vienna, etc., in 1881 and 1884, are caused by a chronic catarrhal inflammation of the nasal and pharyngo-nasal cavities.



**1060. Vocal cords.** The inspection of the vocal cords by the pharyngeal mirror, shows them to be of a bright red color, resembling mucous membrane; instead of being pearly white, much like the sclerotic coat of the eye. The mucous membrane is a darker red color and the blood vessels larger than usual, and a greater number of them. Continuing the inspection upward, the mucous membrane becomes a still darker red, until the posterior nasal cavities are reached, where it is found to be a bluish red color; showing that in this region the inflammation is **more severe than elsewhere**, and that it originated in these cavities and extended to other localities. The pharynx and posterior surface of the velum when cleaned of this adhering muco-purulent secretion have a relaxed appearance.

**1061. Follicles.** The posterior wall of the pharyngo-nasal cavity, as well as that of the pharynx, is frequently studded with small elevations called follicles, which sometimes look like oedematous drops. The uvula is sometimes elongated, and when this is the case, is frequently made the scapegoat of the tickling, and uselessly excised.

**1062.** All of these patients have a **history of nasal and pharyngo-nasal catarrh** that must be taken into consideration; for treatment without it would certainly fail of success.

**This complaint is never idiopathic; it is always secondary, a sequence of long continued and neglected pharyngo-nasal catarrh.** Therefore, to treat it properly, the nasal and pharyngo-nasal cavities should be treated at the same time; using spray producers whose combined action will cleanse and apply remedies to the fauces, pharynx, pharyngo-nasal and nasal cavities. The instruments required to do this are Nos. 4, 5, 2 and 1, shown in figures 86, 88, 89 and 90, and only some times the spray producers that act on the posterior wall of the pharynx down to the arytenoid processes, and into the larynx, such as Nos. 6 and 7, shown in figures 92 and 93. The



following mixture should be applied with the spray producers Nos. 4, 5 and 2, using about three grains in half a drachm of vaseline:

R Vaseline	℥ j	or gm.	31 10
Eucalyptol (Merk's)	m.v."		32

Mix cold. Use three grains in half of a drachm of vaseline, made quite warm.

In the spray producers Nos. 1, 6 and 7, use half a drachm of vaseline and from three to seven drops of the following pinus canadensis mixture:

R Pinus canadensis (Kennedy's)	m.xv.	or gm.	92
Glycerine (Price's)	℥ss	"	15 00
Aqua fervens	℥jss	"	46 65

M. F. Sol. Use from three to seven drops in half a drachm of vaseline, made quite hot.

I have for many years put one grain of carbolic acid in the above mixture, but lately have found many cases in which the acid did harm. This being the case I have two mixtures, one having the carbolic acid in it and one with no carbolic acid in it.

Frequently I have added, with good effect, about three grains of the following gaultheria mixture:

R Vaseline	℥j	or gm.	31 10
Ol. Gaultherie	m.v.	"	32

Mix cold. Use about three grains in half a drachm of warm vaseline.

The instruments should be well warmed so as to make the medicament **almost hot** before they are applied. Each application should be followed by relief. Even before the patients leave the chair they will voluntarily say that the throat, air passages and head feels easier.

**1063.** The remedy is agreeable to the taste, and the sensation it produces is always pleasant, and should be applied once daily, until the prominent symptoms have abated: then every other day until the secretions cease to be purulent: then twice a week, until all symp-



toms of the disease have disappeared; covering, in all, a period of from, six to twelve weeks.

Should the symptoms re-appear in the fall or spring, they should be driven away by treatments administered once or twice a week. Usually four to six treatments suffice. Frequently a prescription for a laxative, tonic and diuretic will be needed, as most of these patients are of a costive habit; for these purpose I know of none better than the larix compound (863 a).

**1064.** Should a cold be taken during the course of treatment, I prescribe ten grains of quinia, to be taken at bed time, and five grains next morning, with an additional laxative. I have followed this course with uniform success during the last fifteen years.

**1065.** Hygienic measures with such patients are of the utmost importance. Every precaution, against catching cold by night or by day, should be taken. A restricted and graduated use of the vocal cords will be found to be in the highest degree beneficial for all those whose voice has in any way become affected.

**1066. CHRONIC INFLAMMATION OF THE VOCAL CORDS.** This is always a sequence of chronic inflammation of that portion of the respiratory tract located above the larynx. The principal objective symptom is a redness of the vocal cords. The appearance of the cords in health is that of a pearly white, similar to the sclerotic coat of the eye. It must not be taken for granted that because the vocal cords are redish in color, the voice will be proportionately affected. I have seen a large number of patients who were affected with aphonia, whose vocal cords were perfect or nearly normal in color. Again, if we examine the vocal cords of many of those who smoke and chew tobacco, we will find their color to be quite red; but their voice for usual conversation will not be affected, at least not to such an extent as to be a matter of observation to others.

**1067. Peculiarity Concerning Symptoms.** When



patients first begin to show vocal disability, it is important to know that the complaint is not a laryngeal trouble, although they will locate their symptoms in the larynx. Upon observation by the pharyngeal mirror it will be found that there is but little or no inflammation in the larynx and not the least accumulation of secretion, while in the pharyngo-nasal cavity, just behind and above the soft palate there will be observed a high grade of inflammation and a considerable accumulation of secretion. In the nasal cavities the inflammation and secretion will be found to be still greater than in the parts located below them.

1068. I have many times proved the correctness of these views by applying, with the spray producer No. 4, a mild and soothing application to the pharyngo-nasal cavity. If the patient is asked after such an application is made, where the medicament was thrown, he will immediately place his hands over his larynx, if not down on the upper portion of his chest, and say "there", showing plainly that the sensation made by the application reached the location of the sensation made by the diseased pharyngo nasal cavity. Very many times to convince the patients of the location of their disease, I have shown them the direction that the spray took, and indicated as well as I could, on the upper part of their nose the location where the medicament must have lodged. This demonstration is nearly always quite a surprise to them as they are almost positive that their complaint is in the larynx, if not much lower. I have made this demonstration and experiment on over 100 physicians who were my patients, each one of whom became thoroughly convinced that I was right.

1069. Since 1872 I have treated all cases of **vocal disability**, as well as those having inflamed vocal cords, just as I would cases of nasal and pharyngo-nasal catarrh, and have left the larynx entirely untouched by any kind of medicament except by the use of spray producer No.



1, which treats the fauces and, by slow and continuous inhalation, the vocal cords and larynx slightly.

**1070. Frequent coughing and rasping the throat** will, by their mechanical irritation, produce disease of the larynx. As the tickling sensation is produced by inflammation located from three to four inches above, and as this irritation of the vocal cords does not have the least effect in relieving the tickling sensation, it is seen that a continuation of the cough will be injurious, without relieving the tickling sensation. Not only is the larynx injured by the continuous and excessive coughing, but the air passages of the lungs are put upon the greatest stretch by each cough. This mechanical dilation, in connection with a diseased condition of the nerves of the air passages, induced by nasal and pharyngo-nasal inflammation, produces emphysema of the lungs, a condition from which the patient rarely recovers.

**1071. Straining the voice**, if long continued, will be certain to induce inflammation of the vocal cords. As this is a mechanical injury, the patient will recover in short time, if there is no pharyngo-nasal inflammation, but in most of these cases there is nearly always a chronic inflammation of this cavity as well as the nasal cavity. When such is the case they should receive the usual treatment. Electricity is a valuable adjuvant for such conditions.

**1072. Œdema of the larynx.** This is usually a sequence of severe laryngeal inflammation. If respiration is greatly impeded, the oedematous surface should be pricked quite a number of times with the laryngeal lance. This is not a very difficult operation to perform, as the fauces and epiglottis are not sensitive. If respiration is not impeded, the application of quite a hot spray of plain vaseline, applied by spray producers Nos 4, 1, and 7, to be used in the order named, will relieve the patient. If respiration is so much impeded as to endanger life laryngotomy should be at once performed.



**1073. Œdema of the glottis** is treated in the same way as that of the larynx. In all of these cases constitutional treatment will form quite an important part of the practice.

**1074. Ulceration** is not an uncommon complication of laryngitis. If the patient has constitutional trouble, the iodide of potassium should be given as rapidly as he can bear it. I usually prescribe an aqueous solution in which ten drops of water contain 5 grains of iodide of potassium. This I generally have the patient mix with gum arabic solution or some other vehicle that will defend the ulcer from the action of the potassium. The ulcers should be treated locally as recommended in topic **1047** for ulceration of the epiglottis.

**1075. Tumors of the larynx** frequently disappear after treatment of the accompanying inflammation in the larynx and the air passages located above it.

If the tumor remains after three or four weeks of treatment of the inflammation, and especially if it does not diminish in size, it should be grasped by the laryngeal forceps, thoroughly crushed, and the forceps taken out of the larynx without removing the tumor. This operation is always accompanied by more or less spasm of the glottis, to relieve which the spray producer No. 1, with hot vaseline should be at once employed. If the operation is performed successfully there will be no hemorrhage and much less cough than if blood is drawn. If the cough continues to be severe, this will be lessened materially by the patient taking the horizontal position, as lying down on a sofa. He should be directed not to speak at all for three or four hours, as the use of the vocal cords are liable to induce a cough.

**1076. Ambiguity.** It is very common for a writer to say that the right or left arytenoid is inflamed or ulcerated, or that "The arytenoid cartilages are often red in color," when he wishes to convey the meaning that the mucous membrane covering the cartilages is inflamed, etc. It is evident that if the writer was held literally to such expressions, he would be made to say that which he did not



mean. To prevent misunderstanding in such cases, I suggest the term **Processus Arytenoides** or **Arytenoid Processes**, meaning the projections formed by the arytenoid cartilages, cartilages of Santorini, sub-mucous tissues and mucous membrane; and the inflammation of these processes should be known as **Arytenoiditis**.

**1077. Arytenoiditis.** I have seen several patients who had inflammation of one arytenoid process, without excessive inflammation of the other parts of the larynx. This inflammation is always accompanied by a sharp, harsh cough, one that indicates that the irritation is located in the immediate neighborhood of the vocal cord—its sharpness is peculiar and calls ones attention to it.

**1077 (a). The treatment** indicated is to allay the inflammatory condition of the mucous membrane of the upper portion of the respiratory tract. This will relieve the irritation and the cough in a short time. Constitutional treatment will be required. Electricity will be valuable in relieving the distressing tickling in the neighborhood of the vocal cord. The spray producer No. 7, may be required.

**1078. Laryngeal phthisis** is not a sequence of lung trouble but is made worse by lung disease. According to my observation the patient's ailment begins in the nasal passages, extends to the pharyngo-nasal cavity, there it produces the usual tickling that induces a cough, which in turn produces inflammation of the larynx. In a variable length of time the lung becomes involved secondarily from these diseases and after its involvement laryngeal phthisis shows itself. This condition of the larynx will become more rapidly serious, if the stomach is also involved in the lung trouble. In following up the symptoms as they occur, one after another, I have observed that the kidneys become involved subsequent to the abnormal action of the stomach and bowels.

**1079. Recovery very doubtful.** My experience does not warrant me in expecting a recovery of persons thus afflicted. If the patient is young and a female, instead of her chances for life being improved by her age, they



seem to be decreased, as important functions of her body are nearly always suspended, as the pulmonary complaint increases in severity.

Far more can be done by the spray producers in relieving local irritation than by any other means that I know of. The patient should receive the benefit from these. The general system should be sustained as much as possible.

**1080. Complete paralysis** of the vocal cords is not a very frequent complaint, and when it does occur, but little can be done to relieve the patient, especially if it is due to pressure upon the recurrent laryngeal nerve.

If occasioned by excessive inflammation induced by carbolic acid or inhalation of tincture of iodine, etc., the patient must take time to recover from the mechanical injury.

**Electricity** is valuable in these cases, but the physician should not expect very brilliant results until after the reduction of the inflammation.

The best method of applying electricity is not, as recommended by some, to place the electrode on the vocal cords, but to place the anode on the seventh cervical vertebra, and the cathode over the sides of the larynx, externally, and up and down the neck, anterior to the sterno-cleido-mastoid muscles. The application should not cause the least dizziness or unpleasant sensation. The time of the application should not be longer than three minutes. During the time in which the electrode is on the neck, if the patient, on the slightest effort can produce a sound, this will be an indication that complete recovery will take place.

**1081. Growths of the larynx.** Although polypoid growths in the larynx are not very common, they occur frequently enough to occupy a large share of the space in the literature of the throat. A few of these growths are apparently gelatinous, and require but to be well rubbed with a dry sponge to cause them to disappear, es



pecially if they have their origin in a catarrhal condition of the larynx, which on being improved by both local and constitutional treatment, will remove that which sustained their growth.

**1082.** On two occasions I have grasped a tumor on the vocal cord, but refrained from extracting it on account of the alarming symptoms of the patient. On examination of both of these patients one week afterward, there was nothing to be seen of the tumors, or of any marks left by the forceps.

**1083.** Since 1882, I treat my patients two or three weeks before attempting to operate on tumors or growths in the larynx. I thus prepare them for the unpleasant effect of the operation, which is usually of short duration, and always serves to prevent serious spasm of the larynx, when the tumor is grasped by the forceps. On the last occasion of the extraction of a laryngeal tumor, I drew on it for at least five seconds before it gave way, during that time the patient was able to make two full respirations, showing that there was not great irritability of the throat and showing that the preparatory treatments had lessened the excessive sensitiveness of the parts.

**1084.** Before I instituted these preparatory treatments, every operation for a tumor occasioned such a degree of strangulation and spasmodic coughing, as to cause the patient's face to turn purple, and every effort to speak brought on a spasm of the glottis. After one of my patients recovered from the strangulation, he declared that if he had fifty tumors in his larynx he would prefer to let them all grow, rather than have one of them extracted.

On another patient I removed five tumors, one after the other, leaving two remaining in the larynx. On the extraction of each tumor, the spasmodic closure of the glottis was so very unpleasant, that he determined to carry the two remaining tumors with him to his grave.

I am now very confident that had I prepared these two patients by two weeks treatment of the pharyngo-nasal



cavity, the pharynx, and of the larynx, I could have removed all the tumors without a single spasm, as they were men of great nerve and resolution.

**1085. Crushing.** I now grasp the tumor with the forceps, hold it for a few seconds, and let go of it; the crushing and the subsequent treatment causes it to disappear.

**1086. Abscess of the larynx** is not a very frequent complaint. It usually occurs in syphilitic patients. These abscesses are frequently seen at the roots of the epiglottis, though I have seen them on the arytenoid processes. As they are always small, I would recommend non-interference. They do not cause the least hoarseness and many times not the least inconvenience.

**1086 (a). The treatment** consists in treating the existing inflammation, both locally and constitutionally. The tincture of aconite root, three or four drops in a little water will be quite beneficial. The bowels and kidneys should be made to act freely.

**1087. DISEASES OF THE TRACHEA.** There are very few subjective symptoms of inflammation of the trachea. The most frequently observed one is a greater increase of expectoration than would come from an inflammation of the larynx. If the inflammation is excessive there may be pain in swallowing as the larynx is raised in every act of deglutition. This act, of course, puts the trachea upon a stretch and as its lower portion is not raised with the larynx, the trachea is actually elongated. It is seen that the inter-cartilaginous portion of the trachea, if greatly inflamed, must be one of the causes for dysphasia.

**1088. Upon inspection** of the trachea, aided by the pharyngeal mirror, the rings, which should be pearly white, will be of a bright red color, or may have a purplish hue.

This is almost never a serious complaint, and, as it is a sequence of inflammation located higher in the respira-



tory tract, its treatment consists in relieving the primary disease. If upon trial, the application from spray producer No. 7, produces manifest relief this method of local medication should be continued.

**1089. Tracheal growths** are seldom seen. They are always the result of constitutional disease and will disappear upon the successful treatment of this complaint.

Hyperplastic enlargements of the mucous membrane of the membranous portion of the trachea are sometimes seen in cases affected with excessive bronchial catarrh. This requires no special treatment.

**1090. Ulceration of the trachea** is usually a sequence of syphilitic ulceration of the larynx, and frequently a sequence of long continued mercurialization. As it is not possible to make local applications, dependance must be had entirely upon constitutional treatment.

**1091. Stricture of the trachea** does not occur except upon recovery of ulceration of the trachea. Dilatation, by the passage of a bougie, has been recommended.

**1092. Malignant disease** of the trachea is occasionally met with. Surgical interference sometimes relieves the patient of pain but frequently shortens his life.

**1093. Compression** of the trachea sometimes takes place from the growth of tumors on the neck or from aneurism of the large arteries. I have had three cases in which the compression was so great as to take life. In one instance I am certain the patient's life could have been prolonged for several weeks, if not months, by the introduction of a tube passed through the vocal cords and down to the bifurcation of the trachea. This of course would have produced excessive coughing for a short time, but the parts would have soon become accustomed to the presence of the smooth instrument.

#### **1094. DISEASES OF THE BRONCHIAL TUBES.**

As these surfaces are very much greater in extent than those of the trachea, the expectoration following inflammation will also be much greater. Auscultation and percus-



sion are essential to a proper diagnosis as to the extent of the bronchial disease.

If the inflammation in the bronchial tubes is not very severe, and at the same time there is a pharyngo-nasal inflammation that produces a tickling, that is experienced in the pharynx or larynx, so as to maintain a severe cough, an emphysema of the inflamed tubes will be brought about through the dilating force of the cough. The inflammation in the bronchial tubes so weakens these passages that the enlargement is possible. It is seen from what I have stated that the enlargement of the air passages can not take place without excessive and long continued coughing.

Either excessive or debilitated **heart action** is observed in nearly all of these patients. With the commencement of bronchial trouble, the patient begins to experience symptoms that indicate indigestion; constipation of the bowels soon follows as a consequence, and the more severe cases are affected with disorder of the kidney, shown by the **brick dust color of the urine**.

**1095. Treatment.** The patient will require both constitutional and local treatment. As soon as the originating trouble in the nasal passages and the throat are relieved the patient should be recommended to take a change of climate.

**1096.** In giving advice concerning the **change of climate** I have for a number of years been guided by the patient's own experience. If he improves with the increasing warmth of the Spring, I recommend him to go to a warmer climate, such as Arizona, Texas, Florida, or Southern California. If on the other hand he improves with the increase of cold weather in the fall, I advise him to go to a northern climate, such as Minnesota, Dakota Ter., or Washington Ter. During the last eight or nine years this method of indicating the best climate for my patients has given great satisfaction.



### SECTION III.

#### Catarrhal Diseases of the Organs of Hearing.

Every physician who undertakes to treat catarrhal diseases of the nasal and pharyngo-nasal passages, will very frequently meet patients whose ears are also affected with the same catarrhal inflammation. Now, he must treat the ears also, or turn such patients over to a physician who is acquainted with the peculiarities of aural disease; but it will not be possible for this physician to treat catarrhal diseases of the ear, without a thorough knowledge of the method of treatment of catarrhal diseases of the nasal and pharyngo-nasal cavities. It follows, that this work would be incomplete if catarrhal diseases of the ears were not fully discussed.



## CHAPTER IX.

### CATARRHAL DISEASES OF THE EUSTACHIAN TUBES AND MIDDLE EARS.

1097. A name for the ear-air-canal. The air passage extending from the pharyngo-nasal cavity to the middle ear, known as the Eustachian tube, should have a name that will indicate both its location and its functions. The time is long past when a part, or an organ of the body should be known by the name of the discoverer. **Otosalpinx** is a better name for this passage than the one now given to it, and the latter part of this term has the advantage of being used by the German and other writers, but this does not indicate that it is an air passage. **Otaersalpinx** and better still **Otaercanalitis** would locate the passage and indicate its function also. I have known of several well educated physicians—two of whom were graduates of Eastern colleges—who did not know that the Eustachian tube was an air passage. The name *ear-air-canal* will make such ignorance impossible. If I could coin a name that would also indicate that one of the functions of the passage is to graduate the quantity of air that enters the middle ear, this would tell the whole story, but I am at present unable to make such a word.

1098. Inflammation of the Eustachian tube is so very common that it should be known by a name. Salpingitis stands for inflammation of both Fallopian and Eustachian tubes, while **Otosalpingitis** would prevent this confusion. **Otaercanalitis** is equally as good a term and far more descriptive.



**1099.** As stated in topic 139, one of the **essentials of hearing** is the normal performance of the functions of the Eustachian tube or otaercanalis. That is, this organ should allow the entrance of the exact quantity or amount of air into the middle ear that will maintain a normal rarification in this cavity. In every case of hard hearing the defective performance of this graduating function is the very first cause of deafness.

This impediment to the **normal function of the Eustachian tube** is due to complete or partial closure brought about by one of the following three conditions :

*First* :— Closure by excessive secretion of mucus within the canal itself.

*Second* :— By a swelling of the mucous membrane of the tube.

*Third* :— To partial closure by a proliferous thickening of the membranous walls of the tube. These conditions will be taken up as named.

**1100. Closure of the Eustachian by excessive quantity of mucus** formed in the canal itself almost always occurs in the young. Although I have not seen it in cases younger than one year of age, yet I believe it to occur at almost any time after birth. The greatest number of patients afflicted with this closure, that come to the physician's office are aged from 6 to 12 years.

**1101. Symptoms.** If an infant exhibits symptoms of distress, there being no evidences of disease of the brain or bowels, and especially if it throws its hands up to its head, closure of the Eustachian tubes should be suspected as one or the only cause of its distress. If it is afflicted with snuffles this should be taken as an additional indication that the Eustachian tube may be closed with mucus.

While I have stated that the mucus is formed in the canal itself (the inflammation of the tube extending in continuity of structure, as well as by nervous and vascular connections, from the paryngo-nasal cavity), yet the action may also be drawn up the canal by the action of the



the middle ear, thus completely closing the passage the ear-air-canal may become closed by mucus inflammation of the canal itself.

2. The question of mucus being in the Eustachian may be decided by a very simple experiment; place archief over the child's face, and quickly take its your mouth and inflate it slightly with your If the child makes a sudden start you may be hat you have inflated the ears and relieved both membrane tympani.

3. If **muco-purulent secretion** is seen flowing child's nostrils, this should be treated with the producer No. 2, or, if the child is better held in a d position, with the spray producer No. 6. It that it will be noticed that the child makes the erting jump from the first application of the spray , as described when inflating its ears with the f so additional inflation should not be practiced.

4. **Hygienic measures** must be enforced with the cure of the child. A cap must be placed head.

5. **The treatment** of patients of this class that the office—generally aged from six to twelve similar to that already given concerning infants

patient's hearing is always markedly affected. I cases in which the hearing by the watch was to . After the inflation by the rubber bulb as illustration 138 the hearing would be increased to 15 inches by the same watch. Upon the inflation the watch could be carried away 20 bes, and so on increased until nearly the normal distance was attained. This inflation should be d without causing the least discomfort to the Of course before the inflation has been practiced,



the patient should be treated for his catarrhal trouble which is the cause of his ear complaint.

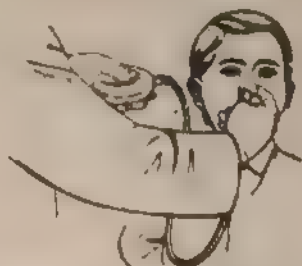


Figure 188. Illustrating the degree of compression of the rubber bulb to inflate the Eustachian tubes. The compression of the bulb (2 inches by 2 1-2) to the extent of one-half of its diameter, is all that is required. A compression force of about 1 1/2 to 2 pounds to a square inch, will inflate an infant's middle ears. The thumb is quickly brought down on the air bulb to the extent seen in the illustration; this will always inflate the ear. Either the metal or glass nasal tube may be employed, figures 56 and 57.

**1106. Additional inflations.** I direct such patients, as above mentioned, to remain in the office for fully half to three-quarters of an hour after the first inflation. I do this to practice the second inflation, as it will be found, upon trial by the watch, that much of the hearing that was gained has again been lost.

**1107. The frequency of the treatment** of these cases will depend upon their catarrhal condition. Daily treatments will be required for at least a week or ten days, and every other day for from two to four weeks.

If these patients exhibit any catarrhal symptoms during the fall and spring changes of the season. They should receive from four to eight treatments, these given once or twice a week as symptoms of the disease may require.

**1108. Closing of the Eustachian tube by swelling of the mucous membrane** generally occurs in patients from ten to twenty-five years of age. The greatest majority of my patients have been about the age of twenty. As already indicated this swelling is an extension from a



diseased pharyngo-nasal cavity, consequently the patient will require the usual treatment for his catarrhal trouble. After the application of the spray producers, the inflation of the Eustachian tubes and middle ears should be practiced in the usual manner.

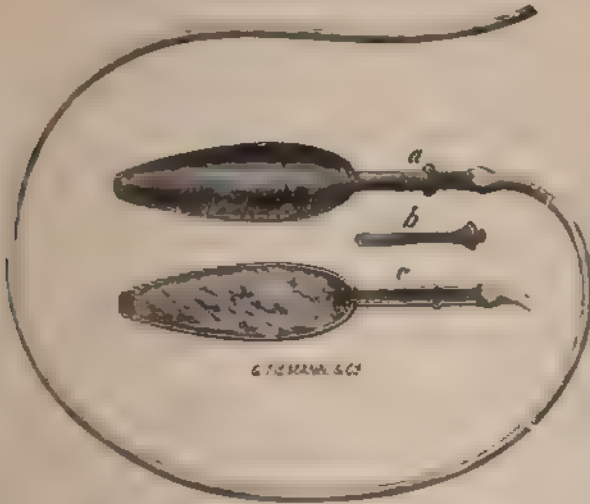


Figure 139. Bottles Inhaler. This is the name by which this instrument is known. It is not used as an inhaler, but for inflating the nasal cavities which is necessary to perform Politzer's inflation of the Eustachian tubes and the middle ear. Within the hard rubber nasal enlargement is placed a small sponge, on which is poured a few drops of the tincture of iodine. As the air is forced through this sponge, the vapor of the tincture of iodine is sent into the nasal cavity, and from thence up the Eustachian tube into the middle ear. I have used this apparatus for quite a number of years for no reason other than that, because it was supposed that the vapor of iodine had a beneficial effect on the inflamed mucous membrane. Instead of being beneficial it is positively injurious to the nasal passages. Its effect in the Eustachian tube and middle ear is nil; there is not enough vapor gets there to do any good or harm either.

1109. Patients of this class frequently complaint of pain in the ear. This may be relieved by their placing a little vaseline in the external auditory canal. The vaseline should be placed upon a small pledget of cotton



and made quite warm, almost hot over a lamp or gas jet, and immediately passed into the auditory canal. If this does not relieve the pain, a small portion of the following mixture should be given to the patient to place in the ear:

R Vaseline 34 gm. 15 10  
Atropine Sulph. gr.  $\frac{1}{2}$  or " 0 032

M. Sig. A piece as large as a pea, to be placed on cotton, made warm and passed into the ear; this to be repeated every half hour while the pain lasts.

1110. I suggest the names **Tubæ Eustachii Stenosis**; **Otosalpinges Stenosis**; **Otaersalpinges Stenosis** and **Otaercanalis Stenosis** for a partially closed Eustachian tube, the result of long and continuous inflammation of the mucous membrane of this air canal.

1111. This complaint of the ear-air-canal may occur at any time from about the 25th to the 45th year of age, and is dependent upon a proliferous inflammation of the nasal and pharyngo-nasal cavities, as much the greater proportion of persons who are afflicted with hard hearing have Eustachian tubes that are partially closed because of the proliferation of its mucous membrane. I will dwell at some length upon this condition.

1112. **Slow, painless diseases.** As might be expected from the nature of the growth, the disability it entails is one that comes on the patient so slowly that he is not aware of it, as all proliferative inflammations are perfectly painless. For this reason the physician never sees his patient at the commencement of the complaint, but always after it has so far progressed as to make material inroads upon his hearing. In fact were it not for a growing deafness, the patient would not consult a physician.

1113. **The ear symptoms** are not marked. This is one of the indicative signs of proliferous inflammation of this air canal. The patient has, as a rule, had many



other symptoms of catarrhal inflammation. Now and then I have had a case who claimed to have had no catarrhal symptoms whatever; never to have had a cold in the head; never to have had a sore throat, or the least headache; yet deafness of both ears existed. Subjective noises are almost always present. Another symptom of this disease is the ignorance of the patient of the degree of hard hearing. They think they are a little deaf in one ear, and when shown by the watch that their "best ear" is also quite deaf, they are greatly surprised, and almost incredulous. If they have any sensation in the ears, they describe it as a fullness, or as if a little pledget of cotton had been placed over the ear. Some feel as if the ear passages were stopped up, and ask if it is not a mass of hardened ear wax that prevents their hearing normally. If the patient has lately taken a cold, so that the partially closed Eustachian tubes are still more closed by acute inflammation, thus further decreasing the ingress of air to the middle ear—which will cause the membrane tympani to become still more concave—then symptoms of vertigo can be experienced. This symptom is the result of increased pressure of the stapes upon the labyrinth, the organ of equilibration.

**1114. Tinnitus aurium**, a vibratory sound in the ear is so constantly present in chronic inflammation of both the Eustachian tube and the middle ear, that I will devote some time to its consideration. From very many of the symptoms of patients who are affected with this ailment and from a study of an analogous ailment—paralytic palsy of the arm—I am led to believe that tinnitus aurium is a paralysis agitans of one or more of the muscles connected with the small bones of the middle ear.

**1115. There is no such tangible thing as sound.** Sound is not an object—not a substance, but a condition of the air which produces its effect upon us. What we call sound is the impression that ordinary vibrations of



the air, or any other body, make upon the auditory nerve. In other words, it requires that motion be transmitted to the auditory nerve; the effect of this motion upon the nerve we call sound.

I do not think that we can perceive sound in any other way. If this is right, it follows that we cannot have a kind of sound without motion being imparted to the liquid in the internal ear.

The auditory nerve is not capable of making motion; the liquid of the internal ear is not capable of producing motion, nor is the brain capable of producing motion. How then can either of these organs make sound, neither of them capable of producing motion?

**1115 (a).** What does produce the motion? Dr. T. Lauder Brunton, of London, in an article in "*Brain*," July, 1878, on "*Reflex Action as a Cause of Disease*," says (331):

"I have just mentioned one instance in which intermittent spasms of a voluntary muscle, the orbicularis palpebra, was caused by irritation of the sensory nerve. This leads me to remark that a very important condition to be borne in mind is that constant stimulus of a sensory nerve will often produce chronic or intermittent, and not tonic or continuous, contraction of the muscles which it may set in action. It was observed by Notmager, that if the sciatic nerve of a frog's leg was subjected to constant stimulation under certain conditions, the contractions which it induced reflexly in the other leg were intermittent or spasmodic, but not continuous or tetanic."

The intermittent or vibratory motion of the orbicularis palpebra, is exactly similar to the motion of the muscles of the ear, both being caused by the same kind of disease, namely: irritation of a sensory nerve of the facial.

**1116.** Is tinnitus aurium a sound or a hallucination? Hallucinations, that is, the hearing of voices, by persons whose minds are more or less alienated, is not tinnitus aurium, nor are these voices sounds, in the ordinary acceptation of the term.

If tinnitus aurium is not a sound produced by motion,



It must be a hallucination, and exist only in the mind of a mentally diseased person. That this is not the case is proved by many of the methods that are employed to alleviate and cure it, such as the inflation of the Eustachian tube; the application of a mild medicament by spray producers to the nasal and pharyngo-nasal cavities; the inhalation of nitrate of amyle; the application of the constant current of galvanism, etc., neither of which could so readily produce an alleviating effect upon a mental disease.

**1117. Pressure upon the labyrinth invariably produces vertigo** but there are no facts to sustain the assertion that pressure produces a vibratory motion within the internal ear, and without this motion there can be no such thing as a vibratory sound.

**1118. Paralysis agitans of the ear muscles.** In tinnitus aurium there is sound, of this we are positively certain: but the sound is not produced by sound waves in the air, yet, it can only be produced by motion imparted to the liquid in the internal ear, and I think this motion is imparted by a paralysis agitans of one or more of the small muscles belonging to the middle ear. The alternate contraction and relaxation of the muscle or muscles cause the motion, which is imparted to the ossicula, to which the muscles are attached, and these in turn impart it to the liquid in the internal ear and auditory nerve. I believe this can be substantiated by clinical facts.

**1119. Influence of location.** In the investigation of the causes of this vibratory ear sound, it will be well for us to take into consideration the location of the patient when he first contracted his tinnitus aurium. It will be almost universally observed that those living in one location, will complain of being troubled with a peculiar kind of sound that differs markedly from those who live in a different location. This indicates that there is a relationship between the kind of sound that the patient hears in the ear and the sound produced in different locations in which different patients live, and it shows that



the sounds produced in these localities have something to do in helping to bring about the sounds in the ear. This is a point that should be noticed particularly.

**1120.** The noise in the ear is variously described as resembling, exactly, some very familiar sound heard in the neighborhood of where the patient resided at the time that he became affected with the vibratory ear-disease.

It should be noticed, that the sound in the ear is always a familiar sound. Those patients whose habitations were surrounded by large trees, were most liable to have a sound resembling the noise of wind blowing through the trees; those who lived where they heard the hissing noise made by the escape of steam, were liable to have this kind of sound in their ears; those who lived where they heard the distant roar made by the ocean's waves, were liable to have these vibratory sounds in their ears; those who lived where they heard the puffing of a steamboat were liable to have an intermittent sound in their ear, resembling the puff of the steam; those who lived near a water-mill, were liable to have the sound of rushing water in their ears; those who heard the frequent ringing of bells, were liable to hear a like noise in their ears. The same may be said of those who lived where they frequently heard the tinkling of metal, the sound of a planing-mill, the roar of a water fall, the sound of an elevator in a hotel, the peculiar sound of the propeller of an ocean vessel, the vibrating of a steamboat's paddles, the pattering of rain on a shingled roof, the rumbling of railroad car wheels; the working of a steam printing press; the moaning of a person in pain, etc.

**1121.** These descriptions of the resemblance of the noise in the ear to other familiar sounds, are some that were made to me by my patients.

With many of the patients, I am certain that the sounds in their ears dated from a period at which they had heard something that produced a similar sound -- that produced



a similar vibratory motion of the muscles of the ear. Thus it is observed that each and every one of these patients was afflicted with such ear noises as they had heard in their neighborhood.

**1122. The ear a telephone.** I am sure that it will be admitted that if these outside sounds—that I believe induced the ear sounds—were made near a telephone, this instrument would reproduce the same vibrations, that is, produce a sound similar, in every respect to the patient's tinnitus aurium. I believe that the membrana tympani, the ossicula auditus and their muscles are made to undergo the very same vibrations that the diaphragm of the telephone undergoes. I believe that the membrana tympani is a telephone to the brain.

**1123.** I have never had a patient report that he had noises in his ears unlike any sound he ever heard. Very frequently there may be two or more sounds in the ear at the same time, but each one is a familiar sound, and one that he had heard while he was contracting his tinnitus aurium.

**1124. Old Jones'.** I had a patient who when a young man, lived near a water-mill known as "Old Jones' saw-mill." He frequently bathed in the pond connected with the mill, and on one occasion took a severe cold that affected his head and afterward his ears. From that time on he had the sound of this mill in his left ears. I assert positively that if he had not heard the rushing water leaving "Old Jones'" mill gate, at the time he took this cold—now over thirty years ago—he would not still have this sound in his ear, this being his tinnitus aurium. To repeat in other words, the contractions of the muscle or muscles in the ear was a paralysis agitans, and that these contractions and relaxations were made rapidly enough to produce vibrations of the same length as the sound waves that were occasioned by the rushing water leaving the mill gate; and that the sound waves, made by the water were the producing cause of



the vibration of the muscle or muscles in the ear, their nerves being, at the same time, in a diseased condition occasioned by catarrhal inflammation.

**1125.** Not only are human beings imitative as far as the formation of sounds are concerned, but their nerves and muscles are also imitative. If a child in a school-room has an epileptic spasm, and if there is another child whose system has been prepared by disease so that he is liable or predisposed to epileptic spasms, the sight of the first child in spasms will be very liable to induce a like condition in the other child. This has been observed many times. Not only is this observed in animated nature, but it is also observed in inanimated nature.

**1126. Other imitators.** If we go into a room where there is a piano, and make a sound similar to that which one of its strings can make, the sound that we produce will be reproduced on that string, because the length of the sound waves in both cases, is precisely alike. This is exactly what happens in the ear, and we call it sound. In the person afflicted with tinnitus, the muscle or muscles connected with the ossicula, being in a diseased condition, caused by the chronic inflammation in the middle ear, and ready to take on a paralysis agitans (which is a succession of contractions and relaxations) continue the vibrations received from any accidental sound that exactly suits their hyperæsthetic condition. If these vibrations continue after the accidental sound ceases, then the vibrations constitute the paralysis agitans, or in other word, the tinnitus aurium.

**1127. Preparation required.** Of course the muscles were made ready by disease for the paralysis agitans, before this accidentally sound started them, just as the G string of the piano was ready to begin its vibrations from the accidental G sound; but if the G string had not been ready, the accidental G sound would not have started it nor would the ossicula muscles have continued the mill gate sound, in the patient mentioned above, had not the hyperæsthesia made the muscles ready to continue vibra-



tion that were exactly similar to the noise of the water leaving the mill-gate.

**1128. A start required.** Thus it would seem that "old Jones' mill-gate" made the sound-waves that started the vibrations of the ossicula muscles, and these muscles being in a diseased condition, continued to make the same vibrations, producing identically the same sound in the man's ear ever since.

**1129. The question** may be asked would he have had this kind of tinnitus had he not heard the sound of the water leaving the mill-gate? If it is possible for him to have this peculiar kind of tinnitus without it being started by the water, then he could; but if it was necessary for the water to start the sound, then he could not, and this proves my proposition correct, namely, that the sound from the mill-gate, and his mill-gate tinnitus have a positive relationship the one to the other.

**1130. The mill-gate sound** is one that is produced by a certain rotation of peculiar vibrations. The ear muscles would undoubtedly have vibrated from any other kind of sound, but they would not have *continued* the vibrations that constitutes the tinnitus, unless these vibrations also came within the range of the hyperæsthetic condition of the muscles, exactly as the G string of the piano comes within the range of the accidental G sound, nor could the ear muscles of themselves, even in their diseased condition, produce a rotation of peculiar vibrations to resemble exactly those of a peculiar sound, as for instance the mill-gate sound, without being started by the sound of the water leaving the mill. It follows therefore, that it would be impossible for the patient to have the same mill-gate sound in his ears, had not the muscles in his ears continued to reproduce the vibrations necessary to produce that identical sound; nor could a tinnitus, in any state of the ear, exist without being started by some outside sound that has a similar wave length which would exactly suit the hyperæsthetic condition of the diseased muscles so as to produce the tinnitus.



1131. If the stapedius muscle was affected with paralysis agitans, would it not most certainly produce a sound? No one can question the correctness of the assertion.

1132. Some kinds of ear sounds are experienced by all patients equally wherever they are located, namely the hissing and singing sounds or these two combined.

I account for the starting of these sounds in this way: the ossicula muscles in such cases are in such a peculiarly hyperæsthetic condition that they cannot make the vibrations exactly equal with that of usual sounds that are made near the place where the sufferer lives, consequently their vibrations take on sufficient rapidity to form the hissing or singing sounds. These they can do, if started by a jar of the body or from any outside sound, and this tinnitus is maintained by a continuance of the hyperæsthetic condition of the muscles that made these continued vibrations possible.

1133. Again, an overdose of quinine, as well as of some other agents, has the effect of causing tinnitus aurium, that is, of causing a tremulous action of the muscles of the ears. But this effect on the ear-muscles is always concomitant with a tremulousness of the whole muscular system, of which the patient is perfectly conscious, and which may be heard by means of a stethoscope. This condition is usually called the nervous effect of the drug.

1134. Method of relief. That the vibrations in paralysis agitans are equal in rapidity to the vibrations made by the original sound that produced them, is proved by the fact that as soon as a patient, who has tinnitus aurium, produces a sound exactly similar to the sound in his ear, the sound in his ear ceases, and only one sound is perceived, and the sound perceived is the one made on the outside. But if the outside sound is not exactly similar to the tinnitus, then the tinnitus will change its tone so as to resemble the outside sound, then it will



cease to be distinct from the outside sound while the latter continues to be produced.

It is in this way that we can effect an amelioration of tinnitus aurium by electricity. If we can apply just the quantity and intensity of electricity that will cause a sound in the ear nearly similar to the tinnitus, but lower in tone, that is, a tone with a less number of vibrations to a given length of time, and then slowly and carefully changes the quantity or intensity of the electricity, so as to leave the ossicula muscles vibrating at a lower velocity, they will frequently—not always by any means—continue their new vibrations, which will constitute the improvement in the condition of the tinnitus. Subsequent applications of electricity will have the effect of still decreasing the number of vibrations in a given time, and thus lead to the complete cessation of the ear vibratory sound.

**1135.** I have been convinced of the correctness of these views for many years, and the histories of a large number of patients, afford me positive proof that I am right.

**1136. Cases of tinnitus aurium.** John H.—*et.*, 28 years, red hair, recommended to me by Dr. H. S., Leffingwell, former Superintendent of our Insane Asylum, who had treated him for a morbid affection quite successfully; but the greater annoyance was an ever present melancholy sound in his ear.

He said that this sound alone made him uncontrollable; he felt as if he must do something to be rid of it; often getting out of bed, after retiring for the night, to walk the room, read, or talk in a tone different from, and louder than the noise he heard in his ear. Because of his restlessness both day and night, his friends thought him insane, and, doubtless, for a time his mind was alienated. The following are nearly his own words:

"One night, after I had gone to bed, and had been asleep for some time, I awoke very much frightened, and, trembling like a leaf, sat up in bed. As the moon was shining brightly, and the window shutters were open, I could see that there was nothing in the room to cause this overpowering terror. As I sat up in bed I groaned, but not loud. I noticed that this—strange as it may appear to you—drove away my terror; so I continued moaning for a short time, and then



lay down. I soon began to feel frightened again, and, without getting up in bed, moaned a short time and fell asleep. When I was awakened next morning by my sister, she said I was still making a low moaning noise. After she woke me, I heard this melancholy moaning in my ear just like what I made the night before. This sound remained in my ear all the time. I could not eat my breakfast as the noise continually reminded me of the fright I had in the night, and then the noise is such an overpowering melancholy sound, that it will break my heart if it is not stopped."

**1137.** Another patient, who, at the time I speak of, had a "cold in the head," had occasion to visit the office of a friend, where a fire-place was covered with a piece of paper pasted over the opening. One corner of the paper had become loosened, and the draught through the chimney caused it to vibrate, or flutter, producing a fine, humming sound. The sound was reproduced in my patient's ear. He expressed himself as certain he had no tinnitus in his ear when he entered the office, and is equally certain it was present on leaving.

**1138.** Another patient had been exposed for forty hours as a wrecked ocean vessel. Some part of the rigging made a very disagreeable noise. When rescued from the wreck, this melancholy noise continued in his ears so constantly, that he was sometimes deprived of sleep, because of its presence. It affected his mind to such an extent that he thought of suicide, often suggesting it as a means of relief. He had never before heard any sounds like it, and is certain he got it from the wreck.

**1139.** Mr.—at 50 years, dark hair. Had otorrhoea when 7 years old, which lasted for several years. At that time lived on the Ohio river, where he could hear the steamboats puffing every day; the noise made by the escape of steam at that date was quite loud, and could be heard for four or five miles very distinctly. The noise of the puffing of a ferry-boat whose landings were about a half a mile apart, was peculiar and was heard almost continuously every day. This noise was continued in this patient's ear for nearly ten years, although he had lived for eight years of that time in a distant state. He is positive that he had never heard such a peculiar noise come from a steamboat before that time, nor since, yet this peculiar noise continued in his ear for eight years after he had left the neighborhood.

**1140.** I have had three engineers of railroad locomotives who had tinnitus aurium, but the noise in each case resembled noise which came from their engines. One of them stated that when he smoked to excess, the tinnitus would increase in fierceness and velocity, which he regarded as a warning to desist.



**1141.** A young lady who had taken a bad cold in her head and ears, was confined to her bed by the severity of the attack. In an adjoining yard were some boys making a peculiar, loud and very disagreeable noise, by drawing a rosined string through their hands, the string having been passed through the bottom of a round, tin soda box. As the string slipped through the hand, the rosin caused it to make a peculiar noise, very unlike any other noise. Every one who has heard it will agree to this. This noise was continued in this patient's ear for several months, and was only relieved after a long and tedious treatment.

**1142. Treatment.** Tinnitus aurium is very often successfully treated, if taken soon after manifesting itself, and if the patient is under thirty-five years of age; most of the patients over this age, who have been afflicted more than five years, can be ameliorated only.

As this symptom is but a sequence of pharyngo-nasal catarrh, the latter disease must be successfully treated before a great improvement can be promised the patient. At each visit, after treatment with spray producers Nos. 4, 5 and 2, the air douche should be used. When the inflammation in the pharyngo-nasal cavity is reduced, recognized by the diminution of the purulent character of the secretions, a constant current of electricity, of sufficient quantity or intensity to produce a slight, but pleasant, impression on the patient, will frequently produce a favorable result.

**1143. Application of electricity.** The anode should be applied to the ear of the patient, the cathode to the hand on the opposite side. The electrode that is passed into the ear should be guarded by India rubber, except at the point. The application should be made by the patient inclining the head to one side, and filling the auditory canal with slightly warmed salt water. The electrode should then be passed into the ear to within one quarter of an inch of the membrana tympani, when it should be connected with the battery: **starting a current so gentle or weak, as to be scarcely felt by the patient, and gradually increasing its quantity and intensity, un-**



til the tinnitus ceases, lessens or changes to a more pleasant tone. **15 seconds by the watch** is a long enough time to apply the current, while great care should be taken not to lose the good effects of the application by too suddenly breaking the current.

**1144. If the tinnitus has been ameliorated, do not apply the electricity a second time.** I have noticed, that second applications almost invariably leave my patient worse than before any had been made. Be satisfied if the electricity has done even a *little good*, and you will find, on the return of the patient, that the good impression made before, increased as time passed on.

**1144. Tenotomy of the tensor tympani muscle** has not resulted in the benefit that was hoped for, when this operation was first proposed. If it was possible to perform this operation on the stapedius muscle, it might have a beneficial effect.

**1145. Changes of the position and appearance of the membrana tympani.** The most plainly observed objective symptom of this complaint is the increased concavity of the membrana tympani. This is occasioned by the thickening of the mucous membrane of the Eustachian tube, curtailing the quantity of air that enters the middle ear, thus producing abnormal rarification of air in the middle ear, the mechanical effects of which is to cause the outside air to force in the most flexible portions of the drum membrane. It is readily seen that this forced-in condition of the membrane displaces the ossicula and thus prevents them from transmitting the sound-waves received by the membrana tympani and a degree of deafness is the result.

**1146. Undue pressure on the internal ear.** Another effect of this excessive pressure is to produce **pressure** upon the liquid of the internal ear, by the base of the stapes being forced farther into the labyrinth. If this pressure is maintained long enough it will induce disability of the hearing, which will be observed when the tu-



ing fork is placed on the mastoid process. That is, it will not be heard as plainly on this process as it will be heard through the air.

**1147. Anchylosis.** If the membrana tympani remains in this position for a long time it will induce a low graded inflammation of the joints of the ossicula which ultimately may increase to such extent as to produce anchylosis. This being an additional cause of hardness of hearing.

**1148. The causes of deafness** may be stated to be as follows: (a). Pressure on the small bones made by the membrana tympani thus causing them to leave their normal position for transmitting sounds. (b). Pressure on the liquid in the internal ear by the stapes. This being moved inward by the malleus and incus. (c). Slow inflammation of the internal ear from this pressure; and, (d) disuse of the auditory nerve because of the non-transmission of sounds to it by the abnormally placed membrana tympani and ossicula auditus.

**1149.** I believe that the **auditory nerve** frequently **recovers** its power of perception of sound soon after the conducting media are brought to their normal position. I am certain that I have had patients who could hardly hear the tuning fork on the mastoid process, recover their hearing so far that the fork was heard fully 75 per cent. better than previous to the treatment.

**1150.** Some patients **hear better in a noise** than in a quiet room. The reason for this peculiarity has not been satisfactorily explained. I do not think that it militates against the possibility of the hearing being materially improved, and, if not improved, the inflammation may be so much reduced that the patient will retain the amount of hearing that he already has.

**1151. Treatment.** The patient should be given the usual treatment for the nasal and pharyngo-nasal catarrhal inflammation. After each treatment the ear-air-canal and the middle ear should be inflated while the patient is either swallowing some water, or is phonating the



word "what." The effect of this inflation is not to drive the mucus from the Eustachian tube into the middle ear as there is no mucus, but to force air into the middle ear and mastoid cells so as to give the membrana tympani and ossicula auditus temporary relief from their cramped up position, held there by the rarefaction of the air in the middle ear.

**1152.** This course is to be pursued daily until the muco-purulent character of the secretions in the fauces has disappeared. If the applications are successful the tinnitus aurium will be reduced *pari passu*. As soon as the noise begins to lessen, either in its severity or in pitch of tone, the application of electricity should be made to the ear. A constant current of electricity of sufficient quantity and intensity to produce a slight but pleasant impression on the patient will frequently be productive of favorable results. The induced or Faradic current should not be applied to the ear, as it is *always* injurious. A good way to test the strength of the current of electricity, to be applied to the ear, is to place *both* poles on your tongue. If the current is of such strength as to produce an impression that is not disagreeable to your tongue, it is safe to apply it to the patient's ear. If the patient does not feel it, then very gradually increase its strength until he does feel it. The judicious application of this agent may sometimes be followed by marked benefit while its hap-hazard employment will almost certainly result in injury.

**1153. Perforating the membrana tympani for deafness** is an operation first suggested by Prof. A. Politzer in 1868. At this time he inserted a rubber eyelet to prevent the closure of the opening and thus maintain the air in the middle ear equal in density to that on the outside.

**1154. Membrana tympani eyelet.** I believe that maintaining an opening in the membrana tympani will prove a valuable adjuvant in the treatment of many cases



of chronic inflammation of the otacanal and middle ear, its advantages are two-fold, viz.:

**1155. One**, the hearing of the patient, is instantly improved by the perforation of the drum head, and forever lessens the tendency of the membrane to be drawn inward by the excess of rarefaction of the air in the middle ear and mastoid cells, which is occasioned by the inflamed condition of the ear-air-tube, preventing sufficient air entering the tympanic cavity and mastoid cells. As the membrane is drawn inward, the possibility for vibration occasioned by sound waves is lessened, and, as in other joints, where motion is greatly impeded, the ossicula lose their ability to move with the freedom as when in the normal condition, thus preventing the transmission of sound waves to the internal ear.

**1156. Another** advantage is the improved opportunity to apply remedies to the ear-air-tube and middle ear. As it is, with the imperforate membrane, our opportunity to treat the tube and middle ear is almost reduced to *nil*.

**1157. Perforating the membrane** may be done by a two-edged, sharp-pointed knife, 1 line in width. The opening need be but 2 lines in length. In the few cases on whom I have operated, I inserted the eyelet immediately after the opening was made in the drum head, using for the purpose, a slender angular forceps, illustrated in figure 140. The membrana tympani eyelet



Figure 140. Angular forceps for inserting an eyelet in the membrana tympani.

is held by inserting the points of the blades of the forceps into the opening, and then spreading the blades. As



soon as the eyelet is properly placed in position in the drum-head, the forceps are withdrawn.

**1158.** The result of my operations, taken as whole, have not been very satisfactory, because I did not know what kind of cases to select. The treatment of the first case was a success. The next three were not improved, but were not made worse, which proved to be a very important negative result. The six cases following were slightly improved at once. The last two cases operated upon were treated for about two years, which resulted in their being restored to a greater degree of hearing than could have been done while the membrane remained imperforate.

**1159.** In the first five cases, I used hard black rubber. This is dangerous as it deteriorates by contact with the fluids of the ear, and is liable to break into two pieces, one of which will necessarily fall into the middle ear. Pure gold is the only material that should be used for this purpose. In one of my cases, one-half of the eyelet dropped into the middle ear and remained there for four or five months, without occasioning the least inconvenience to the patient. One day he felt something tickling his ear, and in relieving the sensation with his finger, removed what he thought was the whole eyelet, but what proved on closer examination to be its outer half only. For fear that it might be the cause of serious inflammation, should he take cold in the ear, I opened the membrane down to the floor of the middle ear, and then washed the inner half of the eyelet out with water. The opening in the membrane did not close again, so there was no necessity for inserting another eyelet. The ear was very painful for several months after the washing.

**1160.** I removed the rubber eyelet from one patient and expected to insert a gold one, but the opening remained patent for one year at least, and as he has not reported, I think it is still open, as his hearing was greatly improved from the instant the knife allowed the at-



to enter the middle ear. I think that he would have visited me had his hearing become defective.

1161. The other patients I have not heard from in several years, when they last reported they were not conscious of further impairment in their ears, as their hearing remained the same as after the perforation.

1162. **Patulency or Patency of the Eustachian Tube.** I propose the following names for this abnormally open condition of this air-canal: **Otaercanalis Patula; Otaersalpinges Patula, and Tuba Eustachii Patula.** This disease is not mentioned in the works on Otology. I have treated 132 patients in whom the ear-air-canal was abnormally open, showing that it is far from being an infrequent complaint.

1163. To enable me to make myself understood clearly on this subject I will make a few preliminary remarks concerning the conformation of the Eustachian canal, or otaercanalis (ear-air-canal).

I have made many efforts to obtain thin sections of the Eustachian tube, such as are fit to be placed under the microscope, but have failed to get them to show the mucous membrane as plainly as is represented by Prof. Rudinger in Stricker's Histology, pp. 975-977. My efforts, however, have been so far successful as to convince me that he has represented the true condition of this canal. To him the profession are greatly indebted for his scientific researches in this direction.

1164. The Eustachian tube is a very peculiarly shaped air canal. The peculiarity being that while it resembles a collapsed tube, whose inner walls are verticle, there is in nearly the whole of its length, along the upper part of the slit formed by the collapsed sides of the tube, a small capillary opening, whose walls are never in contact at any time.

1165. A cross section of the portion of the tube having the capillary opening in it, resembles a button hole in a dress coat, the sides of the slit or



button hole are in apposition, while a portion of one end of the slit, the upper, is formed into a small opening, which remains patent.

**1166. Air permeation.** The air permeates the air-canal through this small capillary opening, that is, it is drawn through this opening into the middle ear and mastoid cells, because of the rarefied condition of the air in these cavities, the mucous membrane, lining them, absorbing it, which causes the rarefaction. It is thus seen that it is the inequality of air density that is the cause of the uniform renewal of air in the tympanic cavity and the uniform concavity of the membrana tympani. It is also evident that the membrana tympani must be maintained in this normal concave condition by the partial but normal closure of the Eustachian tube. Now, if the Eustachian tube is maintained so open that air can freely enter, of course, the membrana tympani will not be maintained in a normal, concave condition, consequently deafness and other abnormal sensations are the result.

**1167.** In the patulous condition of this air tube, the membrana tympani is allowed by reason of the absence, as it were, of the normal rarefaction of the air in the middle ear, to leave the position required for good hearing. The immediate cause of the patulency or patentcy is the lodgment of a small quantity of thick, tenacious secretion in that part of the Eustachian tube that forms the collapsed portion, that is, the lower portion. This quantity of the secretion is not so great as to completely fill the slit-shaped canal, but sufficient to act as a wedge to hold open the upper portion, and in this may allow the too free access of air, and sounds, from the larynx to the middle ear.

**1168. Location of the secretion.** When the mucous membrane of the tube takes on a catarrhal condition, the secretion is not formed in the upper portion of the tube (i. e., where the air is continuously entering), as in this location there are no mucous glands. Glands are



*found in that portion only of the slit, whose sides are in constant apposition*; consequently, when a superabundant quantity of secretion is poured out, as in the catarrhal condition of patients under to thirty years of age, it must first fill the lower portion of the tube, where the glands are located. Thus it is, that the thick mucopurulent secretion holds the capillary portion of the tube abnormally open, so that sounds may enter from the larynx, as well as the too free entrance of air, to the disability and annoyance of the patient. As already stated, the normal membrana tympani is more or less concave from the slight rarefaction of the air in the middle ear, but as soon as the Eustachian tube is held open by the thickened secretion, so that the air freely enters, then the membrane on that instant falls outward, dragging with it the ossicula, thus interfering with normal hearing.

**1169. The annoying symptoms.** While deafness is a prominent symptom of the patent tube, the most annoying one is the unusually loud sound of their own voice in the ear. It so completely confuses some patients that they will instantly discontinue conversation to blow their nose, in the endeavor to relieve themselves of this tormenting sensation. In a short time they, of themselves, learn some method of getting momentary relief, such as closing their nostrils and making inhaling efforts; as in Case II, page 121; trying to inflate their ears from their lungs; swallowing saliva while they hold their nostril closed; etc. These methods greatly rarefy the air in the pharyngo-nasal cavity, Eustachian tubes and mastoid cells; and, for a moment, close the Eustachian tubes, which shuts off the sounds from the throat, and causes the membrana tympani to again assume its normal concavity, thus increasing the ability to hear.

**1170. Age affected.** It is seen that this complaint affects, almost exclusively, persons of middle age; and that it is a feature which comes on only after a long continued chronic catarrhal inflammation of the pharyngo-nasal cavity. Patulency of the tube will hardly happen



in the young, as their mucous secretions are so exceedingly profuse and so fluid as to at once completely fill the tube, thus cutting off all access of air to the middle ear. I have not seen a patient past 55 years of age afflicted with patulency or patency of the tube. I think it will rarely afflict the elder, for the reason that their secretions are not profuse enough to form a wedge to hold the tube open.

**1171. Tympanophony.** The most annoying symptom is the sound of their own voice. To some their voice sounds as if their head were in a barrel; to others the voice has an echo. Some have two sounds to their own voice, one from within the mouth or head, the other far off, to one side. These two sounds are easily accounted for; one, the loud sound, comes from the throat and enters the Eustachian tube, going at once to the ear by a short cut; the other goes to the ear after it has left the mouth. This is the indistinct and distant sound.

**1172. Treatment.** As the patulency of the canal is caused by pharyngo nasal catarrh, the local treatment will be mostly confined to this complaint. Spray producers Nos. 4, 5 and 2, in the order named, should be employed, spraying vaseline and the eucalyptol mixture as in pharyngo-nasal catarrh. After this is done, the Eustachian tube should be frequently inflated by Gruber's method, if possible, if not by this method then by Politzer's. In the former method, the air is compressed while the patient phonates the word "what" strongly; in the latter, while in the act of swallowing a little water, as described in topics 521 and 522.

**1173 Electricity.** After the secretions in the pharyngo-nasal cavity have lost their purulent character, electricity will be of great benefit to some patients, using an intensity that will be but slightly felt.

**1174.** It will always be observed that as the inflammation of the pharyngo-nasal cavity is reduced, so do the symptoms connected with the Eustachian tubes sub-



side. A failure in the treatment of the primary location of the complaint, will result in the failure to ameliorate the secondary symptoms, i. e., the abnormally open tube.

The frequency of treatment, and the length of time required, will depend, as it does in pharyngo-nasal catarrh, on the severity of the case.

**1175. Otorrhœa.** There are two sufficient reasons why the treatment of this complaint so generally results in a failure: one, is the difficulty in persuading the parents of the child of the necessity to properly protect the ailing ear or ears from the effect of inclement weather; the other is because this complaint has been deemed a primary disease, and not a sequence of a pharyngo-nasal inflammation.

This complaint, as well as many of the diseases affecting the eye, has been erroneously diagnosed and treated by oculists and aurists as idiopathic diseases; when in reality, almost, if not every, non-traumatic affection of both these organs may be found to be a consequence of chronic inflammation of the nasal and pharyngo-nasal cavities, and the sinuses connected with them.

This is sufficient to indicate the course of treatment that I should choose to take, namely, that the nasal and pharyngo-nasal passages require much more attention than does the diseased aural cavity.

**1176. Treatment.** After spraying the nasal and pharyngo-nasal passages, the ear should be cleansed carefully with a little absorbent cotton. If the middle ear is so full of thick secretions that the parts cannot be seen, then a small quantity of water should be thrown into the ear, as described in topics 644 and 645.

The pharynx and nasal passages should be sprayed by the spray producers Nos. 4, 5 and 2; using half a drachm of vaseline alone, in the latter instrument, and half a drachm of vaseline and three grains of eucalyptol mixture in the former two, warming the remedies after they are placed in the spray producer.



**1177. Inflation.** The Eustachian tube should now be inflated while the patient is pronouncing the word "what," as described in topic 523. Inflation may also be performed while the warm spray producer is throwing vaseline spray into one of the nostrils, as described in topic 523; the other nostril being closed, and the patient directed to either swallow a little water or to say "what." The latter method has much the greater effect on the ear. It should be constantly borne in mind that not the least pain, nor even disagreeable sensation should be produced by the treatment.

**1178.** The number of treatments will depend greatly on the severity of the complaint and on the color of the hair and skin of the patients. Dark haired patients usually improve quicker than those with light hair. Usually a treatment once a day for four or seven days, then every day for about three weeks, then twice each week for the same length of time, and once a week for as long a time results in recovery.

**1179. When repeated.** One or two treatments a week for three or four weeks each fall and spring for a few years usually results in a complete cure; provided care is taken to prevent unnecessary exposures to cold and sudden changes of the weather.

**1180. Removal of aural polypi.** Frequently these small growths are caused to disappear by merely treating the otorrhoea. If after one or two weeks treatment the polypi do not disappear, I grasp them with a small pair of forceps, such as Bumstead's ear forceps, shown in the illustration 129. I do not think that it is best to pull the tumor out, as the resulting effects are frequently such as to cause excessive contractions of the mucous membrane of the middle ear, which would undoubtedly interfere with the movements of the ossicula and result in permanent impairment of hearing.



## CHAPTER X.

### CATARRHAL DISEASES OF THE MASTOID CELLS AND MASTOID PROCESSES.

**1181. Esomastoiditis; inflammation of the mastoid cells. Symptoms.** In every severe inflammation of the middle ear, these cavities must, to a greater or less extent, be implicated. If the diseased action is not severe, there will be little indication of mastoid complication; yet, sometimes after the subsidence of the primary tympanal inflammation has almost disappeared, the inflammation in the cells seems to increase in severity, and to then continue as if it was an idopathic complaint. When the disease assumes this phase, the pain in the posterior portion of the ear and over the mastoid process increases beyond any thing experienced by the patient. About the time these symptoms appear, the patient has constitutional evidences of a general disturbance of the whole system. All this time the deafness increases, and the pain over the outside of the head, down the neck, over the shoulder and down the arm is experienced.

**1182. The membrana tympani** will appear of a dull red color, and the integument over the mastoid process becomes red and swollen. The blood vessels all over the side of the head and down that side of the neck are greatly enlarged. The surface of the skin over the mastoid process and down the side of the neck is very sensitive to the least touch. In some of the cases, I have had an erysipelatous inflammation set in soon after the



swelling of the mastoid process began. There is almost always excessive noise in the ear, but it is not usually of an aggravating nature, except for its loudness.

Slight and cautious inflation of the middle ear gives a little relief; this relief sometimes consists in the noise being lessened and at other times the pain is lessened; but if this operation is repeated more than twice, even if cautiously practiced, increase of the painful symptoms usually follow.

**1183. The brain.** In severe cases there is danger of the inflammation extending to the brain through some one of the large number of minute branches of the middle meningeal artery. The mastoid vein, which enters the lateral sinus, may carry pus into the circulation.

**1184.** While this is a very dangerous disease, yet many cases recover after the inflammation has existed long enough, and has been severe enough to destroy the bone and find vent either over the mastoid process or by long sinuses down the side of the neck.

**1185. Treatment.** In the mildest form of this disease, the nasal and pharyngo-nasal passages should receive the usual applications by the spray producers Nos. 4, 5 and 2, the middle ear should be inflated, being cautious not to use the air bulb with so much force as to occasion the least distress.

Four or five drops of a four per cent solution of atropine should be placed on a pledget of cotton, and momentarily held over a lamp to warm it, and then placed deep into the auditory canal. The patient should be put to bed and the head well covered with a silk cap. If the feet are not warm, a large flannel, wrung out of hot water and mustard, should be placed around them. Over this an oil silk or rubber blanket should be placed; to prevent the bed clothes from becoming wet. If it is desirable to prolong this hot bath, a bottle of hot water should be placed outside of the flannel.



**1186.** Aconite is the best remedy I know of to assist in allaying inflammation. I usually prescribe it in connection with lobelia, as follows;

R	Tr. Aconito, rad.	3j	or grs.	3 75
	" Lobelia,	3j	"	8 75
	Syr. Auranti cort.	3i	"	15 50
	Aqua	3i	"	81 10

M. Sig. Half a teaspoonful every two hours, while the pain lasts.

If the patient is an adult, 10 grains of quinine should be prescribed at once, to be followed in three hours with 10 grains more. If the bowels are constipated, a laxative should be prescribed.

**1187.** The patient should be kept quiet and free from excitement. In case the above course does not relieve the pain, leeches should be applied to the mastoid process. If the swelling on the process is fully two inches in diameter, and the blood vessels large and injected, three large leeches should be applied. Moist warmth should be placed over the mastoid process, so as to invoke still further depletion.

**1188. MASTOIDITIS.** Inflammation of the mastoid process. Should the pain still continue, and the inflammation behind the ear increase, an incision should be made over the mastoid process.

This operation is performed as follows: An anæsthetic having been given to the patient, the operator stands so that the top of the patient's head is towards him. Having located the lower portion of the mastoid process, he presses the point of the knife about a half of an inch below what he thinks to be the most projecting portion of the process. The knife is carried down, until it strikes the bone. The wound is then extended for an inch upward. If the periosteum is not divided with the first cut, the knife should be again used. In a small majority of cases pus escapes from the wound; but if no



pus is seen, the operation is justified by the relief that almost always follows it.



Figure 141. Heavy Scalpel for incising the integument over a swollen mastoid process, for relief of mastoiditis and esomastoiditis.

1189. Those who have not had experience in performing this operation, will be greatly surprised at the thickness of the tissues over the mastoid process. I distinctly remember that the soft parts over this process on the patient I first operated upon, was fully three-quarters of an inch in thickness.

After the completion of the cutting operation, the wound should be kept open by packing it with cotton, which has been saturated with the eucalyptol mixture, mentioned in topic 1082. Over this should be placed flannels wrung out of hot water.

The posterior auricular artery is almost always divided. It may require tying or torsion. I have not yet tied it in any of the operations I have performed.

The constitutional treatment previously described should be continued.

1190. Perforation of the mastoid process. In the most severe cases, perforation of the mastoid process may have to be performed. This is done by trephining through the mastoid process, at the bottom of the wound previously made.

The depth to which the trephine will have to pass, before the cells are reached, varies from one-sixth to one-half of an inch with different patients. There is on record a case in which one inch of bone was passed before the cells were entered. After the opening and the removal of the core cut by the instrument, the cells should be injected with the following:

R	Aquæ fervens	℥j	or grs.	497 60
	Sodium chlorid	ʒj	"	3 90
	Eucalyptol	m xx	"	1 30
Mix.				



This should be thrown into the cells by the ear injector, illustrated in figure 125. The opening in the cells should be maintained by the cotton packing, used as above described.

## CHAPTER XI.

### DISEASES OF THE EXTERNAL AUDITORY MEATUS, AND EXTERNAL EAR.

**1191. INFLAMMATION OF THE AUDITORY CANAL** is, I believe, from clinical observation, almost always secondary to diseases of the middle ear, Eustachian tube, etc. It is well known that after a secondary complaint has had a start, as it were, by a primary disease, the secondary one will even exceed the primary disease in severity and duration; so it is with nearly every disease of the auditory canal. I believe that even an erysipelas that commences on the outside of an ear, and an eczema that creeps around from the back of the ear and attacks the auditory canal, would not thus affect this passage, had not its integument, glands, blood vessels, etc., been in a more or less abnormal condition, by reason of pre-existing inflammation within the tympanum.

**1192. Nasal origin.** I have had quite a number of cases of diffuse inflammation recover after a very short course of treatment, which had been directed to the nasal and pharyngo-nasal cavities, followed by tympanal inflation. The only application made to the auditory canal was that of plain vaseline, and this had been applied for weeks before the patient visited me. These results indicate the correctness of my views.



**1193. The cause.** It is almost impossible to find a cause for some attacks. A great many aurists blame hair-pins, ear-spoons, etc. for the cause of an attack. But if these cases that had an attack after the use of the pin or head, in relieving the itching, had been inquired into, it would be found that the itching preceded the application of the pin, hair-pin, ear-spoon, etc., and we have too many cases of the same complaint that commenced with the itching, in which these means of relieving the ear were not used. Close inquiry will demonstrate that the auditory passage was in a very dry condition just previous to the itching, which is really one of the first symptoms of an attack of inflammation of the canal. If a patient, whose auditory canal is in this dry condition, happens in some way to get cold water into the ear, the latent complaint may be lit up to its height in a short time. If this person, instead of getting the cold water in his ear, allows a cold draft of air to strike it, the effect may be the same. If the patient is a child, and has a mother or nurse who is horrified at the sight of dirty ears—and children with tender ears are very much afraid of washing them—she will apply plenty of water to these passages “to get them clean at least once a week,” and that may result in an inflammation of the auditory canal.

Persons who have had frozen ears, are apt for some time to be afflicted with this inflammation. If an eczema or an erysipelatous inflammation appears on the side of the head or the back of the ear, it is almost certain to attack the auditory canal also.

**1194. Symptoms.** About the first sensation that draws the patient's attention to his ear is that of a slight dry sensation soon followed by itching. If the canal is picked with a pin or bored into with the little finger-nail, a distinctly painful sensation follows. Soon after this the patient experiences a sensation of fullness and heat.



Upon inspection, the auditory canal is seen to be quite red and the integument a little swollen, if the pain has lasted, with slight exacerbations, for three or four weeks, the membrana tympani, itself will be red. In cases where the disease has lasted for several months, a slight exudation of a yellowish, nearly clear fluid will be observed and there will be an excessive exfoliation of the dermoid layers of the canal.

The patient will complain of the excessive heat of that part and of a dullness of his hearing, as if his ear was partially "stopped up."

1195. There may be considerable constitutional disturbance such as fever, headache and a furred tongue, showing that the stomach also is involved in the trouble, the bowels will be constipated and the renal secretions scanty and high colored, he will have little or no appetite. It will be almost impossible for the patient to sleep without an anodyne, as the pain frequently increases during those hours he desires to take the horizontal position in bed. Those who have had a sore finger know well, how the pain is increased if the ailing member is taken from an elevated to a dependent position. This is just what happens with a patient complaining of an inflamed auditory canal. The pain is great while he is in the erect position, but as soon as he assumes the horizontal position, a greater quantity of blood is allowed to remain in the head, which of course greatly increases the pain in the ear, thus compelling him to lie awake.

1196. Treatment. After a thorough treatment of the nasal and pharyngo-nasal cavities has been made, the auditory canal should be wiped out carefully with a small quantity of absorbent cotton, wrapped around an angular probe, the cotton to be saturated with vaseline and then warmed and passed into the ear. If the pain has been excessive it will be well to apply three or four drops of a solution of atropine, 4 grs. ad ℥j, to the membrana tympani. This application had best be made by



means of a small pledget of absorbent cotton made warm over a lamp and passed into the ear.

If this does not relieve the pain and there is a great deal of inflammation and swelling of the auditory canal a sufficient number of leeches to abstract about an ounce of blood—if the patient is an adult—should be placed near the orifice of the auditory canal.

**1197. Scarification** may sometimes be required, when used, warm applications should be made to the parts to continue the flow of blood.

The local effects of aconite is nearly always beneficial. I generally apply it in the following form :

R Vaseline.	3j	or gms.	81 10
Tincture of Aconite root,	mx.	"	1 30

Mix cold. Sig. Apply to the auditory canal a portion of the mixture as large as a white bean.

**1198. Vegetations** are sometimes seen springing from the integument in cases that have been afflicted for many years with an eczematous inflammation. These growths seem to be small polypi. They have invariably disappeared upon the disappearance of the inflammation.

**1199. Furuncle.** This is generally occasioned by inflammation of one of the bulbs of the vibrissae located in the auditory canal. The symptoms of furuncle very closely resemble that of diffuse inflammation of the canal; in furuncle the patient experiences sharp lancinating pains. It is always an acute affection; diffuse inflammation is frequently a very chronic affection.

**1200.** I usually treat furuncle in very much the same way as that of diffuse inflammation. If the furuncle shows formation of pus, this should be liberated by free incision followed by the application of the warm ear douche. After the canal has been thoroughly dried out with absorbent cotton the aconite mixture mentioned in topic 1197 should be applied quite warm.

I have had a few patients who claim to have had a



many as four or five furuncles a year. One of them was a physician who made a thorough trial of the sulphide of calcium and found that he did not receive the least benefit from it.

**1201. Inspissation of cerumen.** A constipated secretion of the cerumenous glands is the cause of the cerumen being so inspissated that it, in turn, causes impaction of the cerumen in the external auditory canal. Instead of these glands secreting cerumen of the normal consistency—which is soft enough to be removed out of the auditory canal by the motions of the vibrissæ of the ear during the motions of the jaw—they secrete a cerumen in such a hardened condition that the vibrissæ cannot remove it. The cause of the cerumenous glands secreting this inspissated ear-wax is an abnormal heat of the auditory canal which in turn is caused by inflammation in the middle ear, Eustachian tube, pharyngo-nasal cavity and the nasal passages, where it first originated.

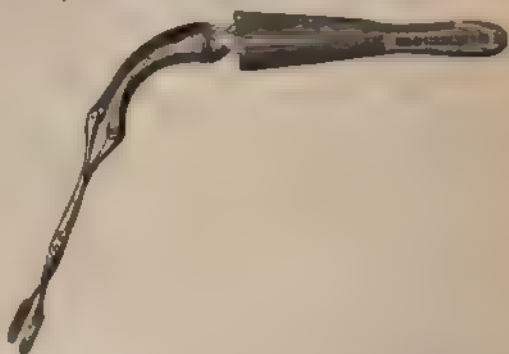
This hard secretion frequently fills the canal so entirely that the hearing is decreased to  $\frac{1}{16}$ ; or it may press upon the membrana tympani, and cause a sensation of vertigo.

**1202. The removal of the cerumen** is not a difficult task, yet I have the history of seven patients whose ears were permanently injured by injudicious efforts at "gouging out" the hardened mass. I am tempted to say that the man who uses an ear-gouge to remove inspissated cerumen is a bungler.

Instead of employing the usual ear syringe, I have constructed a slim injector, illustrated in figure 128; that has a **recurrent flow**. The instrument is bent upon itself so that, when passed into the ear, the hand that holds it does not obscure the view into the canal. There is nearly always a small portion of the upper and forward part of the canal that is not closed by the inspissated wax; through this, the slim injector may be passed quite near the membrana tympani and in this way the



stream of warm water is thrown, not directly against the membrana tympani, but out from the sides of the instrument and directly behind the mass of cerumen. As the stream flows slightly toward the outer portion of the auditory canal, it will wash and float the detached and softened mass out of the ear. It is seen that this is an excellent instrument to flow or wash **foreign bodies** out of the ear, as the stream may be placed behind the substance, provided it does not completely fill the canal, for the stream can be thrown from behind the obstruction.



**Figure 142. Ear Forceps.** This is a good instrument to assist in removing the loosened ear wax, or small foreign bodies that can be grasped by it, provided the spring is not too strong. A strong spring requires so much muscular effort to open the forceps, that if one touches the parts slightly, it would not be felt. The teeth ought to be quite sharp.

After the ear has been cleansed, a small piece of cotton, slightly saturated with vaseline should be warmed and placed in it.



## CHAPTER XII.

### DISEASES OF THE INTERNAL EAR.

**1203.** Complete paralysis of the auditory nerve is not frequently observed. Almost every deaf person will hear sound to some degree.

Cerebro-spinal meningitis frequently causes deafness to such an extent that the usual sounds cannot be heard. In a few of these cases the deafness is so complete that no kind of sound is heard. The reported post-mortem examinations do not seem to agree as to the mechanical cause of the deafness. In some, the disease seems to have manifested itself most plainly in the cochlea, and in others, in the semi-circular canals, and still in others, in the middle ear only, while in a large number of cases in which deafness was marked there was no evidence of disease in the middle or internal ear.

**1204.** The mechanical cause of the deafness. In 1874, I assisted the late Dr. Frank Porter in making three post-mortem examinations of persons who died of cerebro-spinal meningitis. In the first case there were evidences of excessive inflammation in the nasal and pharyngo-nasal cavities, Eustachian tubes and middle ears. The internal ear was carefully examined but there was no signs of inflammation. In examination of the base of the brain and especially in the floor of the fourth ventricle, the base of the brain being upward, the inflammation, as might be expected, was seen to be excessive.



As the brain lay with the base upward, during our examination of it, in our efforts to open into the fourth ventricle, the scalpel destroyed the very part that we wished to examine, namely the entrance of the seventh pair of nerves into the brain. Our notes concerning the inflammation of this portion make no mention of what we saw in the other two post mortem examinations, namely, *the binding of the seventh pair of nerves by the constriction of the parts, caused by the inflammation.*

In the next post-mortem examination, made a few days after this,—a specimen of which was presented to the St. Louis Medical Society—we were careful not to touch that portion of the brain in which the seventh pair of nerves disappear. In looking at this portion carefully with a magnifying glass, it was found that the *soft portion* of the seventh pair of nerves, the *portio mollis*, was *greatly compressed*; but the *portia dura*, the facial nerve, uncompresssed.

In the next post-mortem examination, made about three weeks afterward, the contraction of the *portia mollis* was also plainly observed. Death from pneumonia occurred in this instance three weeks after the apparent recovery from the cerebro-spinal meningitis.

1205. I believe that **these contractions** will account for the deafness in these cases, whether it will in others or not, I am not prepared to say, as it may require a large number of examinations to settle this matter.

1206. Symptoms that are indicative of paresis of some portion of the auditory nerve, are:

(a). Hearing spoken words proportionately further than hearing the tick of a watch.

(b). Hearing the tuning fork longer through the ear than through the mastoid process.

(c). Hearing spoken words proportionately better in a quiet room than on the street or steam cars. If carrying on a conversation in a railway carriage, exhaustion soon experienced.



(d). Hearing decreased by inflating the middle ear.

1207. If all these symptoms are present in a person who has lost 25 per cent. of the normal acuteness of hearing, a promise of staying the progress of the disease may be made especially if the patient is not over 35 years of age. If over this age and the normal acuteness of hearing is reduced to about  $\frac{1}{4}$ , treatment will have very little effect in preventing a still further loss of hearing.

If the patient has a staggering gait and a sense of dizziness upon closing his eyes it is altogether likely that the labyrinth is seriously affected.

1208. In every one of the cases that I have seen, the appearance of the membrana tympani of both ears indicated long existing middle ear trouble and every one of the patients voluntarily gave histories of frequent colds and of severe catarrhal disease of the nasal passages.

If alcoholic drinks have been taken, even moderately, for several years and if tobacco has also been used, the prognosis will not be comforting to the patient.

Most persons thus afflicted are over 35 years of age.

1209. Prognosis. All that should be promised, even to the most vigorous of these patients is the probability that the disease may be decreased in its progress, if not staid, by a long course of mild treatment of the nasal and pharyngo-nasal cavities, the Eustachian tubes and middle ears; the application of the constant current of electricity to the parts and the administration of remedies, internally to correct any faulty condition of the system.

1210. Hearing sounds in addition to those produced, is usually called double sound hearing, it occurs mostly in musicians but is always connected, as other internal ear troubles, with middle ear and pharyngo-nasal disease and should be treated in the same way.



## SECTION IV.

### Diseases that are Secondary to Catarrhal Inflammation of the Nose, Throat and Ears.

It may surprise some of my readers to see the name of quite a number of nervous and mental diseases placed here as secondary to rhinal and aural disease. A great many physicians seem to think that it is only those who exhibit an excessive flow of catarrhal secretion from the nose or ears that are affected with rhinal or aural disease. This is a great mistake. The facts are, that by far the largest number of sufferers from chronic catarrhal inflammation exhibit but slight if any catarrhal secretion. It is a remarkable fact that the very great majority of those who do exhibit an excessive flow of secretion, are but slightly affected with either a nervous or mental ailment. These latter affections do not appear until after the disappearance of the prominent catarrhal symptoms. There are a great many nervous and mental diseases, that are obscure as to their origin, that are due solely to chronic catarrhal inflammation of the mucous membranes of the head, and these diseases will be quickly relieved as soon as the primary complaint is even ameliorated.



I shall take no more space, in presenting these secondary diseases, than will be require to partially describe them, and to indicate what experience has taught me in regard to the local, constitutional and hygienic treatment for their relief. The main object I have in view in this SECTION, is to call the attention of the profession to the near relationship of rhinal disease to those of the nerves and the brain. So thoroughly am I impressed with the importance of this subject, that I believe that in a few years every specialist in nervous and mental diseases must study rhinology if he desires to be a successful practitioner.



## CHAPTER XIII.

### SECONDARY DISEASES OF THE NOSE.

**1211. Inflammation of the External Surface of the Nose.** This consists in a dilation of the blood vessels of the integument of the surface of the nose and is caused by a paresis of the blood-vessels of the part due to long continued and excessive inflammation of the mucous membrane in the nasal cavities. This redness of the nose is usually called a "whiskey blossom" and most observers take it for granted that this condition is the consequence of long indulgence in alcoholic drinks. Not every person who has a red nose is addicted to this habit. The reason why the noses of those who drink spirits are red, is because the alcoholic beverages increase the inflammation which is the cause of the redness.

**1212. Objective Symptoms.** At first the blood-vessels are not sufficiently large to be seen without the aid of a magnifying glass, but their number is sufficiently numerous to give a general glow to the part. After a time blood-vessels, about a quarter of an inch apart, begin to be plainly seen, appear first in the neighborhood of the nostrils, slowly spreading upon the top of the nose, first affecting the alae and the neighboring parts, then spreading on the cheeks and in old cases showing itself as far back as the ears and behind them. The blood-vessels are almost always tortuous and varicose. The nose is cold to the touch and during cold weather has a bluish appearance and exhibits seborrhoea.



If the case is gradually taking on a more diseased form, small roundish bodies, the size of a large pin's head, are formed on the nose. These usually are seen in groups, when they have increased in size to a split pea they form indurated masses.

**1213. Treatment.** This consists in the treatment of the originating complaint within the nasal chambers and in the local application of remedies applied to the outside of the nose itself.

The following ointment has several times produced very good results :

<b>1214.</b>	R. Sulphuris precipitate 3 j.	grm.	3 90
	Ung. aquæ rosæ }		
	Vaseline }	a a 3 jv.	" 15.50

**M.** Sig. Apply morning and evening.

The following wash may be applied frequently with much benefit.

<b>1215.</b>	R. Sulphuris precipitate 3 j.	grm.	3 90
	Pulv. tragacanthæ	gr. x.	" .65
	Pulv. camphoræ	" v.	" .32
	Aquæ calis }		
	Aquæ rosæ }	aa 3 j	" 31 10

**Mix.** Sig. Apply three or four times daily.

**1216. Surgical Treatment.** When the vessels are quite large and make a marked deformity and a radical course is to be pursued, each vessel should be divided by a small knife, the latter being first dipped into the eucalyptol mixture so that this will immediately flow on top of the wound and thus occlude it from contact with the air. If the hemorrhage, following the cut is considerable, the blood-vessel will soon disappear. This method is never followed by a scar. Another method of causing these blood vessels to disappear is to thrust a needle, connected with the negative pole of a galvanic battery into them, the positive pole being connected with a large wet sponge and held in both hands of the patient. The application should be made but momentarily. The effect of the galvanism is to



cause a clot to be formed in the blood-vessel thus completely occluding it.

**1217. Erysipelas of the nose.** This is not an uncommon sequence of accessions of acute inflammation. It may also originate from a flow of acrid secretion; this may cause an abrasion of the skin outside of the nostril. It may also originate from the irritation occasioned by pulling out the hairs in the nostril.

**Symptoms. Objective and Subjective.** The first intimation of the erysipelas is a stinging or burning sensation of one alæ of the nose. At this period the patient will observe a bright redness over the painful spot. This may spread in a few hours so as to involve the entire side of the nose and a part of the cheek. With this extension of the inflammation, the patient experiences chilly sensations and a feeling of lassitude over the whole body. There will be more or less fever and headache. In rare instances the erysipelatous inflammation extends over the whole face and head.

**1218.** It is seldom that the mucous membrane of the nasal passages are affected with this inflammation. When it does exist the surface is free of muco-purulent secretion. Should the inflammation extend to the pharyngo-nasal cavity and pharynx the patient will have a dry, hacking and painful cough. Under these circumstances the temperature of the body will be high—sometimes reaching to 105° F.—and the pulse will be frequent and wirey, not infrequently numbering 150 per minute. When this condition of the temperature and pulse exists, the patient is almost always delirious. The bowels are usually constipated and the renal secretions scanty, the skin dry and the surface of the body burning hot.

**1219. Treatment.** *Water must not be applied to the erysipelatous surface, as this aggravates the disease at once.* The parts may be maintained in a comfortably cool condition by the application of common wheat flour. If the erysipelas has extended into the hair it should



be cut off closely and the flour applied to the inflamed surface. The cooling is maintained by changing the flour as soon as it becomes warm. The clothes employed to hold the flour to the inflamed surface should be of cotton texture, woolen will irritate the parts very much.

This is all the local application that I would recommend to an erysipelatous surface, whether of the face and head or to any other part of the body.

**1220. Local applications to the nasal and pharyngo-nasal passages.** Recent experience has led me to believe that white vaseline is better than the common vaseline when applied to the anterior nares. Some of my patients have stated that the application of common vaseline to the nasal passages has caused the upper lip to become swollen. With such the white vaseline has a very relieving effect. For this reason I have applied white vaseline in cases of erysipelas. The following is the mixture that I have employed:

R White vaseline.	℥j or gms.	31 10
Eucalyptol (Merk's)	m. v.	0 32
Mix. Sig.	Apply warm with spray producer No. 2.	

The patient should be given 4 drops of tincture of *aconite* root every hour until the temperature is lowered to nearly 100° F., and the pulse decreased to nearly 100 per minute. After this decrease of the febrile symptoms, the same dose should be given once in from three to six hours. Quinine in full doses should be given as early in the disease as possible, 15 or 20 grains will not be too great a quantity to give at one time, this should be repeated once in 6 hours. Along with the quinine should be given about 20 or 30 drops of the muriated tincture of iron. This should be given either in capsules or through a glass tube, to prevent the iron from injuring the teeth. A cathartic and diuretic should be administered as soon as convenient. If the skin continues dry a diaphoretic also should be given.

During the war, I had the Erysipelas Ward of the U. S



General Hospital, at Jefferson Barracks, Mo.—a hospital of about 2,000 beds—under my care. In the two and a half years in which I had these patients, I treated over 300 cases, and followed the course mentioned above. The evidence that it was successful, is the fact that I did not lose a patient, most of whom were traumatic cases, and in many the erysipelatous inflammation extended over a fourth of the body.

**1221. Hyperplasia of the nose.** This consists in a thickening of the integument as well as of the connective tissue under it. The organ has a warty appearance due to enlargement of some of the sebaceous glands. The superficial veins are always enlarged, and many of those under the skin are so much increased in size as to give to the surface a bluish color, especially in cold weather.

Some of the warty growths may become so enlarged as to form a tumor or a series of tumors, the great majority of these are benign in their nature, but if they are frequently injured and the scab frequently removed, so that hemorrhages of more or less extent take place, these growths may become malignant.

**1222. The cause** of the thickening of the integument is uniformly that of chronic inflammation of the nasal passages. For many years this redness has been ascribed to the result of habitual use of intoxicating drinks. There is no doubt that this will increase the redness of the nose, but it must be remembered that every person with a red nose is not necessarily a habitual drinker or even the user of alcoholic drinks in small quantities.

**1223. Treatment.** This consists in treating the chronic nasal inflammation and the application of cooling lotions, such as given in topic 1215. The application of the galvanic current of electricity will be very beneficial. If there are any large blood vessels in sight, these might be carefully divided with a lance, but this should not be done until after the redness of the parts has been materially decreased.



**1224. MALIGNANT GROWTHS OF THE NOSE.**

If these are small they should be removed as soon as the surrounding inflammation has begun to decrease. The wound should be covered with some healing ointment and an application of the constant current of electricity made one or twice daily until the wound has become cicatrized.

Covering the wound with a small piece of integument, taken from another part of the body, has seldom been successful, as the reparative process of the nose is not sufficient to induce adhesion of a newly applied skin.

A large piece of skin may be transplanted more successfully than a small piece.

**1225. Atrophy of the nose and upper jaw.** This is always a sequence of excessive rhinal disease. It might be more proper to say that the rhinal inflammation was so severe as to prevent the natural increase in size of the nose and upper jaw, so that when the patient's face grew in size, these parts did not increase *pari passu*.

Nothing can be done for this in adult age, but if the difference in size of the parts calls attention when the patient is young, treatment of the chronic inflammation will prevent further deformity.

**1226. COLLAPSE OF THE ALÆ NASI.** I have had quite a number of cases whose nostrils, upon even a gentle inhalation, approach the nasal columna to such an extent, that inspiration was impeded. I do not call such a case one of paralysis, as but very few persons can contract their alæ nasi, but there is a disability of the muscles connected with the fibro-cartilages (See 5).

**1227. Mrs. —** æt 48 years consulted me, in 1868, with inflamed tonsils. After treating her for a few days, I found that her nostrils were very close, the openings being more than the sixteenth of an inch laterally, and upon slightly forced inspiration the left ala collapsed almost completely. This description is complete for the other cases.



**1228.** For this patient I took a plaster paris cast of each nostril, holding the ala of each side outward by means of the doubled end of a hair-pin. I made a mould of these casts and filled them with red rubber. After vulcanizing them, I reamed out a hole through them, leaving just enough rubber to prevent their collapse by the pressure of the alæ. The rings were attached to each other by a thread one quarter of an inch long, to prevent their slipping too far into the nasal passages. The patient was greatly pleased with the job, and wore them for at least three years, at which time she left the city.

**1229.** The next case was treated in 1876. Instead of using hard rubber, as in the former case, I vulcanized soft rubber eyelets. This patient still resides in this city and still wears the eyelets. They have to be renewed at once in from nine to thirteen months; the nasal secretions soon causing them to fall to pieces. I have had seven other patients that had dentists make eyelets of this description for them, and two had metal eyelets made, one had silver and the other gold. The silver was a very poor substitute for the rubber. The soft rubber is by far the best material, it gives way to the motions of the face and nose. One patient, who had hard eyelets inserted before I made soft rubber eyelets, said that he had no idea that during conversation, and laughing and even in quiet breathing, there was any change in the formation of the nostrils, but the discomfiture occasioned by the presence of hard eyelets proved this to be a fact.

The application of electricity is not of the least benefit.

**1230. Nasal abscess.** The usual site for an abscess in the nasal passages, is on one of the alæ. I have seen them more frequently on the left than the right side. In a majority of instances the abscess originates in a hair bulb, and extends in all directions, sometimes piercing the wall of the alæ and showing itself on the outside. When this is the case, an erysipelatous inflammation not



unfrequently supervenes. If the case is left to its own resources for a day or two, constitutional symptoms will be experienced, slight chilly sensations, "soreness of the bones," pain in the head and face, etc.

If the patient is seen in the earlier stages of the complaint, the opening of the abscess is made on the inside by a short bistoury, and the application of the spray of vaseline, and a small portion of the aconite mixture in it, will end the whole matter. If seen when the abscess has made its appearance on the outside of the alæ, great care should be taken that the opening does not take place on the outside, as the least perforation of the abscess on the integument will result in a contracting, disfiguring cicatrix. It will be well to apply plain vaseline to the whole nose on the outside, and the spray of vaseline and eucalypol mixture or the aconite mixture, as mentioned above, to the inside.

1231. Should the case not be seen until erysipelas of the nose has set in, do not use any kind of wash, or even tincture of iodine,—for it only hides the fiery redness,—nor the less useful liquid called colorless tincture iodine.

Have your patient remain at home, not necessarily in bed: open the abscess on the inside with a bistoury, spray the parts as before mentioned, apply vaseline to the outside of the nose, and to all parts of the face appearing in the least degree red; prescribe three, ten grain doses of quinine, to be taken five hours apart, and a laxative to be taken *at once*.

1232. Should the abscess appear on the septum or on any of the turbinated processes, open it with a bistoury at the site of its pointing, and treat as above described.

1233. **ANOSMIA.** Impairment of the sense of smell. A cold, however slight, contracted by a light-haired patient, over twenty years of age, will impair the sense of smell to some degree. As stated in topic 109, if there is a greater quantity of mucus than is required



for the normal action of the mucous membrane, this will lessen the acuteness of the sense of smell. It is evident, therefore, that impairment of this sense does not necessarily mean a parasis of the olfactory nerves; what it does mean is, that the catarrhal inflammation has caused so much swelling as to press the olfactory nerves, and thus obtund them, and that this swelling should be subdued by proper local and constitutional treatment.

**1234. Complete loss of the sense of smell** may be temporary or permanent.

When temporary it is frequently due to chronic inflammation of the upper regions of the nasal chambers. I have frequently had patients who could not smell camphor or roasted coffee, regain this sense after several months treatment. Almost every patient who is suffering from an acute attack of pruritic rhinitis (hay-fever) is anosmic, but recovers the sense after a few weeks proper treatment.

**1235.** Mr.—set., 38 years, was subject, for three years, to a severe pain in the left nostril. The pain was so excruciating that he frequently resorted to the inhalation of chloroform for relief. His sense of smell had been "pretty good" up to a period when he applied the oil of cloves to his nostril; after this he was completely anosmic, and remained so nearly three years. He frequently applied the oil of cloves afterwards, as he cared less for the loss of the sense of smell, which he attributed to this agent, than for the unbearable pain.

He was treated very successfully for about six months for this nasal pain. In the middle part of the second year, after the commencement of the treatment—having received ten to fifteen treatments each fall and spring—he began to perceive odors. The first odor recognized was the smoke from a blacksmith's shop; then he recognized roasted coffee. In about three or four weeks he could recognize most of the garden flowers that possessed marked odor.

It is evident that while the oil of cloves proved to be a local anæsthetic, its effect proved that it was quite injurious to the inflammation of the mucous membrane.

**1236.** I have had three cases of facial paralysis of the left side, that were also anosmic on that side, and on the recovery from the paralysis they also recovered their sense of smell.



**1237** Quite a number of cases of anosmia are reported as being caused by blows upon the bridge of the nose. I think that if the patient had not been affected with chronic rhinitis he would have recovered his sense of smell. This is my experience with about twenty cases in the last twenty years. Quite a number of cases are reported in which the exposure of the olfactory nerves to a prolonged action of an exceedingly disagreeable smell, injured the function of these nerves; but this is not probable, as persons who are professionally engaged in working in the most offensive sewers, have the sense of smell as acutely as any person I have ever seen. The explanation of persons losing the sense of smell after exposure of this kind, is, that they are afflicted with chronic catarrhal inflammation before inhaling the offensive fumes, and that they would have been thus afflicted with anosmia, even had they not been exposed to the odor.

**1239.** Of course the inhalation of an irritating gas, like that of ammonia, will produce a mechanical injury to the whole of the Schneiderian membrane. So will the application of tobacco; as in the use of snuff. I have met several cases in which I think that the use of strong solutions of carbolic acid produced anosmia.

**1239. Complete anosmia.** Syphilitic destruction of the region of the olfactory nerves, will of course give rise to complete anosmia, and so also will complete atrophy of the mucous membrane of the same region. In these cases it is altogether likely that the olfactory cells (see 17), which lie between the columnar epithelial cells, are rendered paralytic by the contraction of the mucous membrane, thus contracting each attenuated process that passes inward and connects with the terminal fibrils of the olfactory nerve.

**1240. Prognosis.** This is favorable or unfavorable according to the age of the patient, color of the hair, and the apparent cause of the disability. I should talk favorably to a patient who was under twenty-five years of age, and would be doubtful about benefiting one over forty



years of age, although I have treated quite a number, and a little over this age who recovered the sense of smell to quite a remarkable degree.

**1241.** The treatment depends on the cause. If a slight cold, treat this, and the impairment will disappear. If the presence of a tumor, its removal and the treatment of the existing inflammation, will result beneficially in olfaction. If chronic catarrhal inflammation, upon recovery, the sense of smell will return, especially if the constant current of electricity is used externally and internally. In these cases, one must not look for miracles being performed, which would happen, if the sense of smell returned in less than six weeks. Six months will be the usual length of time to notice a return of the recognition of odors.

**1242. PAROSMIA.** Perversion of the sense of smell. This complaint is observed in about three per cent. of those patients who have suffered from nervous complication of chronic rhinitis. Most of them are over thirty-five years of age. It is almost always present in epileptic subjects of every age. Patients, in whom this complication is rapidly developing, are very liable to acquire other signs of nerve disease, and are very liable to be the victim of hallucinations, showing rapidly increasing brain trouble.

**1243.** I have a patient under my treatment who suffers from the presence of disagreeable odors at such times as he is suffering from vertigo. I have found that very few patients are able to describe the odor, and a few of them experienced various kinds of odors, varying with the degree of weakness of the body. I had another patient who did not experience the odor, except during those nights in which he could not sleep.

**1244.** Parosmia is a common trouble with the insane. In the examination of fifty-three patients of this class, this complaint was found to be present in thirty-three.

**1245.** The treatment. This consists in treating



the diseased nasal passage and the nervous system.

**1246. Stenosis of the nasal passages.** There are required, usually, two causes acting at the same time, to complete a nasal stenosis; one, a deflection of the septum, the other a hypertrophy of the tissues covering one or more of the turbinated processes.

To obtain relief without an operation, push into the closed cavity a slender slippery elm tent, and allow it to remain until it has dilated the passage; spray the parts thoroughly with a vaseline and eucalyptol mixture on its removal. After which pass in another tent, and so continue as long as the patient is not greatly inconvenienced; no pain should be produced. As soon as the parts have been opened they should be sprayed once daily to allay the chronic inflammation, which, if it be done, will result in the nasal passage remaining, permanently open.

**1247. Should the passages not remain open, more radical measures will have to be resorted to.** The method of removing a hyperplastic turbinated process has already been described in topic 672.

**1248. Calcareous Accretions in the Nasal Passages.** In my practice I have met with nineteen patients who had calcareous accretions in their nasal passages. Every one of that number was affected with syphilitic tænia, and had ulcerations of the soft parts; some had caries of the bones also. I do not wish to be understood as saying that every person who has these accretions, has also constitutional disease.

The removal of the accretions in the easiest way possible, followed by the thorough cleansing and treatment by spray, result in freeing the breath of the sickening odor that usually attends this disease. There is no special mode of removing these chalky accumulations. A slender probe, one that can be easily adjusted to the different sinuses to be explored, may be used to locate them. To one unaccustomed to the topography of the nasal cavities, he might call a calcareous accretion, a necrosis of one of the bones, and *vice versa*.



**1249.** Not unfrequently, part of the bone is melted away by necrosis, the space left is filled by one of these rhinoliths. When this is the case, it is impossible, judging by the sensations of contact, to distinguish one of these accretions from a portion of bone undergoing necrosis. If a slender pair of forceps is passed to the suspected spot, and made to take hold of the rough object, if it is a chalky accretion, it will, after a few slight efforts at withdrawal, become movable. In the majority of instances if it is easily moved, it may be called a chalky deposit if not a necrosis.

**1250.** The treatment of such cases in no way differs from cases of chronic, profuse catarrh, except in the removal of the rhinoliths, and the additional treatment for syphilitic taint, if such is the case.

**1251. EPISTAXIS.** The cause of the hemorrhage may be either traumatic, as from a blow, or it may be from excessive congestion of an acute character, accompanied by a plethoric condition of the system or it may be due to a hemorrhagic diathesis preceded by a very anæmic condition. Generally the bowels have been, for some time, in a constipated condition and the renal secretion has been scanty, thus making it probable that there is an excess of serum in the blood, which will assist to rupture an attenuated wall of a blood-vessel.

**1252.** "Epistaxia, especially in aged individuals, sometimes seems to occur *physiologically*<sup>1</sup> in relief to the vascular turgescence within the cranium or in the face; and this often affords spontaneous cessation to a determination of blood to the head, and to violent cephalalgia, noises in the ear, vertigo and sleeplessness, with dryness, heat or irritation of the nasal passages, and so on."

I quote this paragraph because it contains some errors that are still popular with the profession. It is evident that a patient who has a violent headache, noise in the ears, vertigo and is sleepless with dryness, heat or irritation of the nasal passages, must have been afflicted with chronic rhinal inflammation for several years.

1. Italicized by the author.



think that the doctrine contained in the above quotation is really dangerous as well as very erroneous. The fact that the hemorrhage takes place is the best evidence that the vessels have been for a long time greatly congested and that their walls are very much attenuated. It is just as easy to have a physiological fracture of an arm as a physiological rupture of a blood-vessel in the nasal passages.

1253. The hemorrhage may occur in any part of the congested mucous membrane of the nasal or pharyngo-nasal cavities, or pharynx. When it occurs in either of the above named cavities it may be taken for a hæmoptysis. This mistake in diagnosis has been frequently made, to the great terror of the patient. If the blood leaves the mouth without the effort of coughing—the patient leaning so far forward that the posterior wall of the pharynx is horizontal—it may be decided that it is a hemorrhage of the congested mucous membrane located above the vocal cords.

1254. If the hemorrhage is copious and prolonged, more than half a pint of blood having been discharged, and the ruptured vessel is located in either nasal cavity, a weak solution of *pleasantly cool* salt water (3 j ad Oj) and pinus canadensis, 3 i, should be injected by means of the catheter nasal douche, figure 65, into the nostril which is discharging the blood. Should the hemorrhage occur in the pharyngo-nasal cavity or the pharynx, a long continued spray of the same solution, at the same temperature should be applied. If the exact location of the ruptured vessel can be found, a small sponge holding a weak solution of the persulphate of iron, applied the spot will check the flow.

1255. All harsh means should be avoided, or resorted to only, after milder measures have failed. If plugging the nasal passages is to be resorted to, a good method of doing so, is to use small plugs made of absorbent cotton. These plugs should be made as large as can be



passed through the anterior nares and into the passage until they reached the posterior nares. After these openings are well closed, the anterior nares should be closed by the same means, provided the hemorrhage is from both nasal passages.

1256. I recall seeing a young man who had been bleeding at the nose for about fourteen hours, the nostrils had been plugged with small strips of handkerchief. I did not disturb these, but placed rubber bands on all four extremities. In about fifteen minutes afterward, the hemorrhage ceased, but very shortly after this, he began to have symptoms of syncope, these were relieved by loosening the rubber bands upon the arms. The rubber bands should be applied around the extremities as closely to the body as possible. The effect of these ligatures is to check the flow of blood from the limbs toward the heart, and thus to accumulate more than the usual quantity of blood in the extremities.

1257. **Maggots in the nasal cavities and those connected with them.** This is a rare complaint, I have met with but four cases in the last twenty-five years of rhinal practice. My first and last case occurred in patients who were suffering under confluent small-pox. The second case was an infant and the third case was a man who had been on a prolonged debauch, and lain on the ground exposed to the sun, in July. The first, second and fourth cases died; the third recovered after a prolonged sickness. The maggots had in this case eaten through the left antrum of Highmore and into the upper portion of the soft palate. There was great destruction of the turbinated processes in the left side, and marked signs of having entered the left frontal sinus. The pain was never very great but there was an ever present gnawing sensation, and a sense of weight in the parts. He had frequent hemorrhages but they were not of a severe character, and always gave him marked relief.

1258 The treatment consisted in cleansing the parts with a solution of about one half of one per cent. of car-



belic acid. While this was painful it did not give the desired relief. **Spraying warm coal oil** at once gave relief, but the number of maggots expelled did not exceed ten or twelve. Long before the patient recovered from the effect of his debauch, the opening into the antrum of Highmore closed. I have, during the last few years heard of three or four other persons who had maggots in their noses and coal oil was used in each case with marked and quick relief.

**1259. Paralysis of the Pharyngo-nasal Cavity and Vulum Palati.** Paralysis of the muscles of the pharyngo-nasal cavity implicates the soft palate also. This complaint is due to excessive and chronic inflammation, and follows syphilitic ulcerations, I have not met a case that was not preceded by long and severe inflammation. Tubercular disease of the larynx is frequently followed by paralysis or paresis to such an extent that the attempt to swallow fluids, results in the most of it passing up into the nasal passages and Eustachian tubes. Diphtheria preceded by chronic catarrhal inflammation is likely to be followed by a paralysis of the muscles of this region. In such patients there is great difficulty in drawing the secretions from the post-nasal cavities down the pharyngo-nasal cavity into the throat. If they are asked to clear their head—nasal cavities—by this effort, they will not know how to perform the act. They will forcibly draw the air into the nostrils but cannot place the soft palate against the posterior wall of the pharyngo-nasal cavity, so as to free this space of the accumulated secretion. This paralysis or paresis is peripheral.

**1260.** Unilateral paralysis of the soft palate is usually followed or is concurrent with unilateral paralysis of the pharyngo-nasal cavity. This paralysis is central.

**1261.** The treatment consists in removing the inflammation that is the cause of the trouble and in the judicious use of the electricity. The positive pole (anode) should be applied to the sides of the neck and the negative pole to the epigastrium, using a sufficient



strength of the current to cause muscular contraction. If the paralysis is so complete, that muscular movement does not follow the application of the pole, unless causing great pain or vertigo, a weak current should be employed; this, in time, will restore muscular movement.

## CHAPTER XV.

**PRURITUS RHINITIS CATARRHALIS.—PRURITIC RHINITIS**  
(HAY-FEVER, JUNE-FEVER, SUMMER-CATARRH, AUTUM-  
NAL-CATARRH, ETC., ETC.)

1262. This complaint has only of late years attracted the attention of the profession. It is one of the evidences that they are seeing that the department of Rhinology is not only of common interest, but of far greater importance than was accredited to it a few years ago.

It is a malady that has several peculiar characteristics, among which may be named: its recurrence, which takes place almost uniformly, at certain seasons of the year, and affects its victims most severely in certain parts of the country, while at other seasons and in other regions, the great majority enjoy almost complete exemption from its attacks. It had not until lately been relieved by any methods of medical treatment. Indeed so completely has the profession failed to even ameliorate the complaint, that the victims have given up all hope from this quarter and in 1874 formed themselves into a society solely for the purpose of mutually searching for relief. The members agreed to report at any time "during their natural life and afterward if permitted" any remedy for their ailment. Up to September, 1884, no such remedy has been reported by their secretary. Such extraordinary measures were never before taken by any class of invalids.



**1263. Usual Methods of Investigation Defective.** The methods of investigation usually pursued, by those who have devoted some time to the study of this complaint, have been to receive from the sufferers their own account of their symptoms or condition, instead of endeavoring to ascertain the causes that prepared the victim's mucous membrane for the attack.

The answers received related to the dates of the attack and disappearance, and to a number of other peculiarities, all of which did more to confuse and mystify than to elucidate the subject.

The investigators have thus laid themselves liable to be led as far astray by these histories, as they would be from the answer of an individual who had a disease, the existence of which he had no sensible knowledge; for instance: the answers of one afflicted with a monomania, if questioned on the subject of his mental ailment. On all other subjects the monomaniac might, in all probability, give correct answers. So with the sufferers of this complaint. On many other matters connected with their disease, except as to the condition of their mucous membrane, they could give correct answers; but on this subject they are very liable to give incorrect answers, simply because there are no subjective symptoms connected with this peculiar condition of their nasal passages, and they could only give subjective symptoms.

**1264. The Inflammation that Prepares the Patient's Nasal Passages for this Complaint causes no Pain.**—It is because of the non-subjective character of proliferative inflammation, that a large percentage of the sufferers state positively that they were in a perfectly healthy condition up to the period of their first attack and between their attacks. This shows the error of allowing the victims to write the histories of their own complaint, especially when the disease is to be studied from such histories.

This subject will receive further consideration in another portion of this work, but enough has been given to show plainly that this method of investigation is exceedingly liable to be misleading.

I have purposely abstained from considering purely theoretical points, such as the season of the attacks so frequently occurring in summer and in certain parts of the country, while during cold weather and in a few parts of the country, the victims enjoy comparative exemption.

These and other apparently inexplicable features of this neurotic rhinitis must ultimately assist in the farther elucidation of its etiology, which at the present writing is considered unknown.

**1265. The present names inappropriate; a new name suggested.** All the names by which this peculiarly phenomenal complaint is known are inappropriate and misleading.

As the medical profession should not agree to a change of a name of a disease without good and sufficient reasons, I will endeavor to show, from the characteristic



symptoms of the complaint, that the names given are misleading, and that we have a more appropriate name in **PRURITUS RHINITIS CATARRHALIS** OR **PRURITIC RHINITIS**. I have given the complaint this name because the prominent symptom is an itching of the nasal passages, face and eyes.

It is noticeable that in giving names to diseases, it is oftentimes designed to indicate their nature, by selecting some prominent symptom or peculiarity of the complaint by which to designate it. When such names are sufficiently descriptive, we may not do better than name a disease in this way. Thus, some names point to the part of the body affected, as cerebro-spinal meningitis, pneumonitis, rhinitis, laryngitis, otitis, etc.: some, the appearance of the patient while sick, as yellow fever, scarlet fever, spotted fever; some, the supposed cause of the ailment, as malarial fever, bilious fever, hay fever, and still others, the time of the year in which attacks occur, as summer catarrh, autumnal fever, etc. If all such names truly indicated what they seem to do, then they might very properly be retained, but if any of them indicates that a certain prominent fact or feature of a disease is constantly present, so as to distinguish it from other diseases, when such is not the case, then, most certainly, the misleading name should be discarded; as its retention will be very liable to lead to an erroneous diagnosis, and thus lead to an improper course of treatment.

**1266. Present names misleading.** Recent investigations, of a very thorough character, go to prove that the various names by which this complaint is designated, are misleading. I am not unmindful of the fact that Dr. Merrill Wyman, a high authority on this complaint, regards the spring and fall forms as separate diseases. In this, I think he is mistaken. On this point I agree with Dr. G. M. Beard, also an excellent authority on "Hay-fever." Dr. Beard says: "In view of the large number of facts afterward obtained, and which are recorded in this work, it was found necessary to abandon this theory [of two forms of the complaint] and to admit the substantial identity of 'Autumnal Catarrh' and 'June Cold'." If the dates of attack and disappearance were erased from the history of a case of this disease, I think even an expert, to do better than guess the season of the year in which it occurred, nor could he make a better guess as to the date of the attack. I am unable, after a very careful study of Dr. Wyman's really valuable work, to perceive the difference between the spring and fall forms of the complaint, except one of severity and that they almost uniformly occur, the one in the spring and the other in the fall; but the individuals who have the attack uniformly in May or in June, relate, essentially, the same symptoms as do those whose date



of attack occurs in August or September, the fall form being the more severe. Nearly all kinds of this class of sufferers are exempt from attack by resorting to the same mountainous regions of the country, and, according to my experience, all are relieved by the same kind of hygienic management and the same kind of constitutional and local treatment. Cases are not at all uncommon who may, for a few years, be afflicted in the early summer months but, for some unknown cause, pass the usual period of attack, and experience it either later or earlier than usual. I had a young patient whose first attack occurred in July, the next in May and the next in September.

That others consider the name not the most suitable is seen from the following quotation taken from Dr. Beard's work. He says:

"The inappropriateness or rather the insufficiency of the term hay-fever is now quite generally admitted; for even where the predisposition exists, hay of any kind, fresh or dried, acts as an exciting cause in but a minority of cases, and rarely, if ever, is it the only irritant that gives rise to the paroxysm."

**1267.** The name "*hay-fever*" indicates that hay alone is the cause of the attack, which is very far from being the case. I have a patient who can handle hay at any period of the year without experiencing the least inconvenience; another one who is not the least affected by it, so long as his scalp and face are not moist with perspiration. While this patient is perspiring during warm months, any kind of dust, but especially that from an old carpet, instantly sets him wild with an itching sensation of the face and eyes, soon followed by the same sensation in the nostrils and by sneezing.

**1268.** The same objection exists with respect to the names "*rose-cold*," "*pollen fever*," etc. It is almost universally admitted that any one kind of pollen, or any one kind of flower, may seriously affect some persons, and have no bad effect on others; yet the distinguishing phenomena, namely, the itching, flow of tears, the flow of watery secretion from the nostrils, are nearly alike in all patients, whether they are attacked in the spring, summer, fall or winter. If they differ, it is in degree of severity only.

**1269. Season names.** This brings us to the names which designate the seasons of the year in which the disease occurs. If the seizures are firmly commenced in June, July or during the autumnal months, the name of the month or of the season of the year might very properly be prefixed to the word "*cold*" or "*catarrh*" or "*fever*" or "*rhinoma*"; but my observations since 1862, and the very thorough investigations of Dr. Beard leave no doubt that the attacks may occur in any month during the summer. Because of its so frequent appearing during the summer months, Dr. John Bostock, of London, (1819) suggest the name "*Catarrhus Aestivus*" or "*Summer Catarrh*." This also is misleading, as well as Dr. M. Wyman's name, "*Catarrhus*



"Autumnalis" or "Autumnal Catarrh." These names indicate that individuals could not be attacked during cold weather; but it is well known that the complaint may sometimes affect its victims as late as October, November, December and even January, according to Dr. Beard's report. I had a patient who had attacks in every month from April to November, and I have one now (May, 1884) under treatment who has had attacks for two years; and the whole year around whenever he is where the air is hot and dusty.

1270. It does not detract from the value of these facts, to say that these last patients, and all other like patients who have been under my care, had their winter attacks much less severely than their warm weather attacks, nor is the argument weakened by the fact that the very great majority of attacks of this complaint occur in warm weather. As the very same symptoms occur in cold weather, warm-weather names are misleading.

1271. The following tables will give, in a condensed form, the dates of attacks and of disappearance. These tables, which are taken from Dr. Beard's valuable work, on "Hay-fever," do not show the duration of the attack. He received his information from answers to inquiries sent to individuals afflicted with this complaint, numbering 200.

TABLE OF DATES OF ATTACK.

From May 1 to 10, 2.	From Aug. 1 to 10, 7.
" " 10 to 31, 6.	" " 10 to 20, 81.
" June 1 to 10, 11.	" " 20 to 31, 54.
" " 10 to 30, 8.	" Sept. 1 to 10, 7.
" July 1 to 10, 6.	" " 10 to 20, 1.
" " " 20 to 30, 2.	" " 20 to 30, 2.
" " 10 to 20, 6.	" June to Sept. 1.
" " 20 to 31, 7.	" Aug. to Jan. 1.

As to dates of disappearance the answers received were the following:

TABLE OF DATES OF DISAPPEARANCE.

January or early winter	2.
About January 1st.	1.
Late in winter	1.
March 1st	1.
Middle of July	6.
Latter part of July.	5.
Early in August	5.
Middle of August	2.
Latter part of August	1.
Early in September	2.
Middle of September	13.
Latter part of September	28.
Early in October	42.
Middle part of October	14.



Latter part of October	-	-	-	-	3.
Early in November	-	-	-	-	9.
Middle of November	-	-	-	-	4.
Early in December	-	-	-	-	1.
Middle of December	-	-	-	-	1.
From September 15 to December 25	-	-	-	-	1.
With frost or cold weather	-	-	-	-	35.
Three weeks after beginning	-	-	-	-	1.
Cannot state definitely	-	-	-	-	1.

2. It is self-evident, from the facts shown by these tables, *the Cold,* "*June-Cold,*" "*Hay-Fever,*" "*July-Cold,*" "*Pollen-Summer-Catarrh,*" "*Autumnal-Catarrh,*" are all inappropriate, insufficient names, and that any one of them tends to mislead a physician who would allow himself to be guided by the character suggested by the name.

3. **Parasitic theory.** A strong point in favor of the parasitic theory is made in the constancy and regularity of the occurrence of the disease at given times with some of the victims, coming on at a fixed day, but the very hour, and also its annual disappearance at such times as might usually be expected if spores of the bacteria or vegetable growths would be destroyed by natural causes. If this nasal trouble is caused by germs, why other nasal troubles originate from germs? Without answering the question I will ask another: How can germs cause this trouble if they depend upon a peculiar condition of the fluids of the membrane for sustenance, which condition must have been the diseased action? As these germs do not in this way affect a mucous membrane, does this not show that diseased action is primary, and germ irritation secondary? Dr. Beard, while speaking of the vegetable theory, says:

"It suggests to almost any one the possibility that some parasitic or emanation appearing only during the season of the disease might be

could be shown that some at least of the symptoms were felt at other seasons; if sufficient evidence of the occurrence of the disease in the winter and spring could be obtained, the parasitic and vegetable theories would be seriously shaken.

Evidence is here given. The hay-fever symptoms that are in the patient are excited by exposure to the dust of hay or of the house, or to animal excreta, are usually, if not always, of a transient character, lasting but a few hours; but for this brief time they are characteristic of the disease, they do not appear in other persons."

4. He arrives at these conclusions from answers to the following questions.

"You ever have, during the winter or spring, when exposed to any of the following causes, as dust, etc., attacks resembling hay-fever, in a mild form, lasting for a few minutes or hours?"

200 affected individuals, 101 answered Yes; 77, No. His



special replies to the same questions, contain these significant expressions: "Lots of e'm, but mild in form," "For a few hours," "Dust of hay will cause it," "Dust of sweeping," etc.

**1275. Pruritus Rhinitis Catarrhalis; or Pruritic Rhinitis, or Pruritic Nasal Catarrh, or Itching Nasal Catarrh,** are the names that I have selected for this phenomenal complaint. Either of these names is descriptive of its most prominent and constant characteristics; names *itching inflammation and flow of mucus.*

**1276. First Symptoms.** The attack is ushered in by an itching of the nose and face; this soon affects the eyes, causing intense suffering. The itching sensation in the nostrils gives rise to prolonged sneezing; this, in turn, makes the eyes still worse; presently, the itching reaches the soft palate and the fauces, and to relieve these parts of this same sensation, the tongue is used to rub them. As the tickling is not relieved, a rasping cough is tried, which is so persistently continued that the throat soon becomes sore, and, in older sufferers, shortness of breath ensues, and symptoms of asthma are developed. I have not had a patient that did not experience this itching early in the disease, and it was always prominent. Dr. Beard gives this as the first symptom and says of it, on page 118:

"This is one of the first, oftentimes the very first local symptom of an attack." Dr. Wyman, in his work on "Autumnal Catarrh" mentioning the local symptoms as they occur consecutively, says, on page 12: "The lining membrane of the nostrils is the part first affected: beginning with a slight tickling or itching, which soon shoots upward towards the eyes, and even into them."

**1277.** To repeat, because of the uniformity of the symptom, and the fact that it is always accompanied by inflammation, I think the names given above are more descriptive of the complaint than any of the names ever given to it. These names indicate the first, the principal and the most prominent symptom and that which is the characteristic of the malady at whatever season of the year the victim is attacked, and it is not misleading.

**1278. History of the Literature of Pruritic Rhinitis.** Little can be derived from the study of the history of the Pruritic of



this complaint. For this reason, only the outline will be given, and that as concisely as possible.

In 1819 Dr. John Bostock, of London, presented a paper to the London Medical-Chirurgical Society, in which he gave the first formal description of this complaint, describing his own case. The title of his paper was a "Case of a Periodical Affection of the Eyes and Chest." This paper was published in the Medical-Chirurgical Transactions, page 161, part 1, volume x. In 1821 he gave the complaint the name of "Hay fever."

In 1828 the same author read another paper on the same subject and gave the disease the name of *Catarrhus Æstivus* or Summer Catarrh. This also was published in the same Transactions, Volume xii, page 437. This name is still retained by many writers.

In this year 1828, Dr. Mac Culloch published "An Essay on Remittent and Intermittent Diseases." In this he mentions a complaint that he thought was caused by emanations from hot-houses and green-houses, but especially from hay fields. He says that the "common people observed that the disease was brought on by exposure during hay-making seasons."

In 1829 Mr. W. Gordon published a paper in the London Medical Gazette, Volume iv, page 266, on the "Observations on the Nature, Cause and Treatment of Hay-Asthma." He thought that the flowers of grass were the cause. For this reason he thought the complaint should be called "grass-asthma" instead of "Hay-asthma."

In 1830 Mr. A. Prister published the history of a case.

In 1831 and in 1833 Dr. Eliotson referred to a complaint resembling this one and published it in the London Medical Gazette. He reports the heat theory of Dr. John Bostock, and the hay theory also, and affirms that grass and probably the pollen of flowers are the causes.

In 1817 Dr. Ramadge, in his work on "Asthma," published in London, holds that the emanations of grass and flowers give rise to attacks of this disease.

In 1850 Dr. Green published a paper in the London Lancet, Volume 1, page 81, on the "Lack of Nux Vomica as a Remedy for Hay-fever." In this paper he affirms that neither the flowers of grasses nor any other flowers are the producing cause, but that it is indoor and outdoor dust that is the exciting cause. He observed that after a rain the victims were much relieved.

In 1852 Dr. La Fargue, of Toulouse, wrote a paper on this complaint. He admitted the heat theory.

1879. In 1861 Dr. Morrell Wyman, of Cambridge, Mass., being himself a sufferer of what he terms "Autumnal Catarrh," described the complaint in his course of lectures in the Medical School of Harvard University.

In 1857 Dr. Watson says that this mainly is caused by vegetable emanations floating in the air.

In 1859 Dr. Walsh in his "Treatise on the Diseases of the Lung," refers to the complaint and calls it a singular variety of "non-pulmonary catarrh."

In this year (1859), Dr. H. Salter, the author of a work on "Asthma," states the complaint is a hay-asthma and lasts during the hay-making season, and says, that heat, dust and sunshine are the agencies that most frequently excite the attack.

In 1861 Dr. Korianz, of Neufchatel, Switzerland, wrote a paper on "Hay-Fever" and published it in L'Echo Medical. He thought that the flowers of grass were the irritating cause.

1880. In May 1866 the facts known to Dr. Morrell Wyman were embodied in a paper read at the Annual meeting of the Massachusetts Medical Society, in Boston.



In 1867 Dr. W. Pirrie, of London, published a work on "Hay-Asthma or the affection termed Hay-Fever." He added little to the literature of the subject, except the very important idea that the nervous system was a far more important factor in the complaint than has heretofore been supposed.

In 1869 Prof. Carl Binz, of Bonn, Germany, contributed an article to Virchow's Archives for February, on the use of quinine as a remedy for this complaint. In this article he gives a letter addressed to him from the physicist Helmholtz recommending the local application of the sulphate of quinine as a remedy.

1281. In this year 1869, in a paper read before the St. Louis Medical Society on the sequences of chronic nasal catarrh, I said that careful investigation would prove that "hay-fever" was one of the sequences of chronic inflammation of the mucous membrane of the nasal passages, giving, at the same time, the history of the symptoms and the treatment of the first case given in this work. In two or three years after this I re-asserted these views before the Illinois State Medical Society, at its meeting in Jacksonville, on the occasion of a discussion on the effects of quinine when applied to the nostrils as a cure for hay-fever.

In 1870 Dr. G. Moore, of London, published a work on "Hay-Fever or Summer Catarrh; Its Causes, Symptoms, Prevention and Treatment." He revised the theory of sunlight, heat and the effluvia of hay and flowers as well as decomposing vegetable matter.

In 1872 Dr. Morrell Wyman again contributed his experiences and observations of "Autumnal Catarrh (Hay-Fever)."

"A leading thought in this work of Dr. Wyman is that in the United States, under the general term hay fever, two distinct forms of disease are included, the so called 'Rose Cold' or 'June Cold' occurring in May or June and corresponding to the 'hay fever' or hay asthma of England and the common, and a latter form, beginning in August and lasting several weeks in the fall, to which he gave the name 'Autumnal Catarrh.'"

1282. In June 1875, the late Dr. George M. Beard published an excellent work on this subject, and claims to have discovered what he terms a "new form of hay-fever." He advocates what he calls the nerve theory, and coming to my views, is far in advance of all previous authors. The following quotation from the preface of his work, will give a partial idea of his views:

"The theory of this book, that this disease is a complex resultant of a nervous system especially sensitive in this direction, acted upon by the stimulating influence of heat, and by any one or several of a large number of vegetable and other irritants, has the advantage over other theories; that it accounts for all the phenomena exhibited by the disease in this or in any other country."

In August of the same year we are given a most carefully prepared work on "Autumnal Catarrh (Hay-Fever)" with illustrative maps by Morrell Wyman, M. D., of Cambridge, Mass. Every physician who desires to study this complaint should supply himself with this work, as well as with Dr. Beard's.

This last Edition of Dr. Wyman's work contains his former views amplified. He holds his Autumnal Catarrh is a different complaint from that of the early summer catarrhs, i. e., the "Rose or June Cold."

As I will take the liberty to make frequent quotations from Dr. Beard's and Dr. Wyman's valuable works, I will not, at present, give more of their views.

Of course I shall differ radically from both of these talented gentlemen.

\* Beard on Hay-Fever.



but wish to acknowledge that I have received more information, in the study of this complaint, from their works, than from all the various works on this subject that have come under my notice.

**1283. Pruritic rhinitis one of the sequences of nasal catarrh.** Authors have had a suspicion for many years, that pruritic rhinitis ("hay-fever") might, in some way, be connected with common nasal catarrh; consequently, they have all given this part of the subject some attention, but for various reasons they have come to the conclusion that there is no evidence of such relationship. It seems to me that their methods of carrying on their investigations have been quite defective.

They have asked those suffering from this ailment, all of whom, with a very few exceptions, resided at a distance, questions, the design or tendency of which they could not fully understand, not being medically educated. In fact investigators have taken it for granted, that these individuals knew the cause and course of their malady, and the questions have been so formed that when filled out, they complete the histories of just such cases, as had been conceived by the victims and the authors.

**1284.** It always requires much greater medical acumen to make a diagnosis, than it does to write a prescription for a known disease. For, while no medical man has been known to ask an ailing individual to write his own prescription, yet the authors on pruritic catarrh (hay fever) have asked their correspondents to take the more difficult part, namely, the writing out their own diagnosis, and from these answers they have studied the complaint; and what makes these narratives of still less value, they are, almost universally dated from a period after their first most characteristic attack, and not from their catarrhatory symptoms. These, the sufferers would not recall, unless assisted by interrogations conducted by one acquainted with the peculiarities of such cases. To say the least, this is a defective method, especially when there exists a supposition that the complaint might be secondary to another disease. Under these circumstances, why not make inquiry concerning their physical condition previous to the first attack of pruritic rhinitis (hay-fever)? Without this, their methods of investigation are illogical, as they have left their readers ignorant of the conditions of the system that might have made the attack possible, if the nasal inflammation precoded it or caused it.

**1285.** I am fully aware that my views on this subject are not in accord with any of the authorities, and in taking this position, it devolves upon me to prove that this phenomenal complaint is a sequence of a comparatively long existing inflammation of the mucous membrane of the nasal cavities. This I intend to do by giving accurate and detailed histories of the physical condition of those who have been my patients, which will show that the inflammation al-



ways precedes it. It is evident that this will go far towards sustaining my proposition; but to make it still stronger, and because some might say that the co-existence of long continued inflammation in the nasal cavities was a coincident and could not, of itself, necessarily prove that pruritic catarrh was occasioned by it, I will give other evidences that will demonstrate beyond the possibility of a doubt, the relationship of the two complaints. This will be done by giving the histories of patients whose ameliorative treatment of chronic nasal inflammation, reduced the frequency and the severity of the attacks of pruritic catarrh, and of a few other patients whose treatment caused an entire cessation of the disorder.

**1286.** In 1860, I made a statement before the St. Louis Medical Society, that a scrutinizing investigation of the patient's condition, during the period previous to the first attack, would show that chronic nasal inflammation had rendered them liable to be afflicted with pruritic catarrh. My numerous observations, made since that date confirm me in this matter. In fact, every individual, whether patient or acquaintance, that I have seen since 1862, who had suffered from attacks of it, had been for several years afflicted by chronic catarrhal inflammation of the nasal cavities.

I am not prepared, at present, to give my reason for this neurotic form of rhinitis attacking the great majority of its victims in summer days and in certain regions of the country, while during cold weather, and in a few parts of the country they enjoy comparative exemption. These and other apparent inexplicable peculiarities may ultimately assist in the further elucidation of its etiology, which at present writing is considered unknown. Before giving these clinical facts, I wish to show how both the investigators of this complaint and the sufferers interrogated have made grave mistakes.

Upon the occurrence of an inflammation of the mucous membrane, the blood vessels are not only filled to their utmost capacity, but they are greatly enlarged by reason of their excessive engorgement, being increased from 1 to 40 times their normal diameter, according to the severity of the irritation. If this inflammation should become continuous by repeated irritations for a number of years, the excessive amount of blood nutrition going to the part, causes a permanent thickening of the membrane, just as the inflamed joint wd. be permanently enlarged, if the inflammation shall be allowed to continue for a long time. In the case of the mucous membrane, this growth is demonstrative of proliferative inflammation. It is during this stage of the inflammatory disease of the nasal passages, that the patient may from some cause at present not known to the profession, become affected with pruritic rhinitis.

**1287. Proliferative inflammation.** According to my observation, a most important characteristic of proliferative inflammation (and it is one that should be continually borne in mind) is that the patient does not experience the least sensation of pain during its progress. Not until the caliber of the air spaces in the nostrils are so reduced in size, that respiration is thereby impeded, do they experience the least inconvenience, except it may be that they have slowly, and imperceptibly lost the sense of smell from the same cause; or, this abnormal process may stealthily invade the Eustachian tubes and middle ear, and slowly and imperceptibly rob its victim of his hearing; but if the loss of these senses



should not suggest the presence of this inflammatory process, he would be entirely unconscious of it, so perfectly painless is its growth.

Another dangerous peculiarity of this variety of inflammation is, that the patient frequently does not experience the usual well-known symptoms of "catching cold," or at least, a very severe cold, yet the proliferative process, that is the abnormal change of the mucous membrane, is continuous.

**1288.** It is evident that, with their nasal passages in this condition, it was impossible for Dr. Beard's or Dr. Wyman's correspondents to have had the least idea that they were victims of this variety of inflammation, the very kind, the only kind that could prepare their nasal mucous membrane for the development of neurotic symptoms. When these physicians did not observe this condition, is it to be expected, that the patients would have made mention of it when not conscious of its existence?

**1289. Statements taken from the Early Histories of Patients Suffering from Pruritic Rhinitis, to Prove that it is a Sequence of Chronic Catarrhal Inflammation of the Nasal Passages.** I will not attempt to give lengthy details of the early history of each patient, nor an exhaustive statement of his symptoms when he first visited me. Of the early history, I will give that much only that is required to prove that chronic inflammation of the nasal passages always precedes the attack of pruritic rhinitis or itching nasal catarrh. The plan of treatment will follow at another time.

**1290. Defective memory.** Physicians will be surprised at the frequency with which the majority of these patients state, at their first visit, that they have been in usual good health previous to the first attack of pruritic or itching catarrh, and, also at the shortness of their memory concerning their symptoms for even a few days or weeks past, but if assisted by various questions, somewhat leading in their character, they will be enabled to recall a sufficient number of incidents that make the history quite complete, which will be amplified by future conversations at subsequent visits during their treatment.

The first case that I will report was, in this respect, a very decided exception, as it was during my conversation with him that I was made certain that my views were correct concerning the relationship of this complaint to chronic nasal catarrh.

**1291** Mr. Luke R. Gibson, set. 48 years, a printer, visited me on June 11th, 1867, desiring relief from his attack of sneezing and asthma. These sudden attacks commenced in July, 1865. The next commenced in July, 1866. On this occasion it occurred on a hot night about the middle of the month, immediately after he had left the printing office, between three and four o'clock in the morning. He thought the exposure to the night air was the cause of the attack.



He voluntarily said that he believed that his chronic catarrh, which he had had since he could remember, was "the cause of the sneezing spells."

*Early History.* When a boy he had large crusts of secretion form in both nostrils. As he grew older these disappeared, but with their disappearance he began to be affected with severe headaches, especially over his forehead. Both of his ears were diseased and he had had an otorrhoeal discharge since boyhood.

His first attack of itching of the face and eyes commenced one hot morning in July, 1865, as he left the printing office. He noticed at the same time that his nasal catarrh had abated to a marked degree, and that as his sneezing grew less, which was about September, his catarrh recommenced. This has always been the case with these two complaints.

My attempt, at the time, to alleviate his suffering, was productive of positive harm. He visited me on Monday, June 24, at which time the above history was given me. At this time I took two aural polyps from his left ear.

Jan. 4th, 1868, he again visited me. His catarrh was very bad, and he had severe headache. For this he was treated about three times a week until Feb. 2d then two times each week until the 26th. After the treatment on this day, he had a slight attack of the itching of the face and eyes, but he did not sneeze. My treatment at this time was too irritating, I was applying by the spray producer a mixture of murate of ammonia, tincture of iodine and tincture of acetic acid.

He at once went to St. Paul, where he resided until Sept., but was not entirely free of his tormentor.

May 31st, 1869. Treated him two times a week, through June and up to July 23d; after this, about once a week until Aug. 21st.

He had no attack up to this date, but sometimes experienced sensations as if the itching of the eyes and edges of the ala of nostrils was about to begin again.

He passed Aug. 1870, without a recurrence of his pruritic rhinitis to the most of the time in the country. I have not heard from him since that date.

1292. Dr. R. J., 50 years, Dentist in St. Louis, consulted me Dec. 18th, 1868, for severe frontal headache; for this I treated him until March 1st. During his visits he informed me that he was subject to what he and his physicians called "hay catarrh." It usually attacked him in May.

*Early History.* At these visits I learned from him that he had been subject to sore throat, enlarged tonsils and severe headaches, as well as a constant clearing of the throat in the mornings, since he was a boy. When his early history was first spoken of, he had forgotten all his early troubles about his throat and head, as these had not troubled him so much of late years, except on the occasion of his visits to me.

He started for Louisville, Ky., and arrived May 18th, 1870, and concluded to remain there a few days before going to Tennessee; but this visit was prolonged to the fourth of July, at which time as he had massed his "catarrh," he concluded to return to St. Louis. On his way home he was attacked on the ears. He continued on his journey home, remained quiet a few days and entirely recovered.

1293. Mr. J. Whaling, of Belleville, Ill., 37 years, consulted me Jan. 1872.

*Early History.* During the last ten years he has been in much trouble with his ears. When 14 or 15 years of age, he had the most severe cough and diseased ears. For many years



this attack of measles, he suffered from dizziness; would not walk down stairs without taking hold of the hand rail. Has had tinnitus aurium since his ears have been affected.

He now has what he calls "rose-cold," and has had it every spring during the last three years. At first the attacks were not severe, always commencing in May, sometimes the first part and sometimes in the latter part of the month. This time it attacked him after he had taken his supper on Saturday the 18th of May.

1294. Mr. W. K. G., of Memphis, Tenn., *æt.* 33 years, consulted me Aug. 2d, 1873 for "hay-fever."

*Early History.* He did not remember of being particularly liable to take cold after he was 21 years old. Up to that age I had a very exposed life. Did not remember when he did not smoke or chew tobacco. Nearly all his life had to clear his throat in the morning, and while endeavoring to do so would become sick at the stomach. If these efforts were made after he had his breakfast he would throw up his meal.

1295. Mr. Robt. G. Kane, of Alton, Ill., *æt.* 35 years, consulted me Sept. 6th, 1873 for "grass-fever."

*Early History.* When a boy he always had a running nose, and kept his mouth open. His mother was accustomed to tie a handkerchief over his head and under his chin, to break him, if possible, of the "habit" of breathing through his mouth. He could not endure this. This condition of breathing lasted until he was almost a young man, at which time his "palate" (uvula) was clipped off, because of a severe cough. He was at this date taken away from college, because of the cough, and was given cod-liver oil. At no time had headache, earache or sore throat, nor any kind of a pain, nor was he ever conscious of taking the least cold.

This is the kind of a case that Dr. Beard and Dr. Wyman would say was not liable to "take cold," because the patient says that he had no cold; therefore there could be no necessary relationship between his "grass-fever" and his very severe chronic nasal catarrh, the proof of the existence of which he had just given; yet he insists that he had never taken a cold in his life, proving that he may take cold, even very frequently, without being conscious of it, as he undoubtedly did.

1296. Mr. Francis B. A., Hannibal, Mo., *æt.* 34 years, consulted me June 16th, 1874.

*Early History.* He required the frequent use of his handkerchief when he was a boy, was always very small for his age until he attained his 19th year. Then grew rapidly. Up to this age they considered him very liable to take consumption, for which he took cod-liver oil for nearly three years. To this remedy he attributed his sudden growth and subsequent good health. He had been unable to very bad colds, but took slight colds every winter. This he knew because he experienced difficulty in singing. At the age of 22 years he noticed the habit of smoking tobacco. In a short time, may be six months, he observed that he breathed with difficulty through both nostrils, especially through the left one, and slept with his mouth open, so that his throat was very dry and slightly sore every morning. At the same time he had severe sneezing spells in the morning and in his effort to clear his throat would frequently get by throwing something off his stomach. As soon as this took place he considered his cough over for the morning.

The severe sneezing and the weeping of the eyes commenced last July (1873), while on a train. At that time, he would put a silk handkerchief over his



nose, as he passed from one passenger car to the other; in this way he, by measure, escape the bad effect of the wind, the locomotive smoke and the dust. Sometimes on entering the car he would sneeze fifteen or twenty times before he could attend to his duties as a conductor. This condition of his case lasted until the first snow. In the early part of this month (June 8, 1874), he experienced the same sensation in an exaggerated form.

1297. Mr. Wm. C. F., Kirkwood, Mo., et. about 50 years, consulted me May 2nd, 1874.

*Early History.* He had enlarged tonsils since he was ten years old, frequent abscesses in the throat (tonsils) in the fall months. Had always thin nas. antrum.

Last Aug. 1873) had severe attacks of itching of the eyes and sneezing whenever he went through a clover field. A week before coming to me I felt the same sensation coming on again. As he was told his complaint was "hay-fever" he concluded to try the effect of treatment. He was quite a fat man and had had a few attacks of short breathing that resembled asthma.

1298. Miss O. H., principal of one of our public schools, et. about 25 years, consulted me March 4th, 1874, because of stoppage of the nostrils, severe frontal headache and weeping eyes. Her eyes began to itch Feb. 25th this had been increasing to her great annoyance and was especially severe at night.

*Early History.* She had been subject to sore throat since she was a girl also to severe headaches. For many years has had to clear her throat in the morning, which occasionally made her sick at the stomach.

1299. J. M. C., et. 29 years, sent to me by Dr. Barbee, of this city, consulted me Sept. 21, 1874, for relief of a severe tickling cough accompanied symptoms of "hay-fever."

*Early History.* He did not think that he took cold when a boy, at least he did not know it, but had "running ears" until he was about 17 years old. He always considered himself as one of the healthiest boys of the family.

One year ago he felt itching symptoms in a slight degree, and was then informed that he was taking "hay-fever." In the early part of this month he had occasion to catch a horse that was in a timothy and clover field, and in doing so became quite warm from running after the animal. About the time he got near enough to the horse a spell of sneezing would come on which frightened the animal away from him. He had noticed that his eyes adhered together in the morning for a few mornings before this attack came on. To the dried, encrusted secretions that adhered to the eyelashes he attributed the intense itching that he had experienced. He did not sneeze more than five or six times, but the first sneeze closed the nostrils completely. Fifteen or twenty minutes he could breathe as freely as usual through the nostrils, and would continue to do so until the next sneezing spell.

1300. Miss M. M. N., New Harmony, Mo., et. 30 years. Sent by Dr. Asstford, consulted me June 17th, 1875 for relief from a severe attack of pruritic catarrh (hay-fever).

*Early History.* Up to three years ago she was very liable to take cold during cold, damp weather, and had suffered for many years with "very bad bleeding hemorrhoids," so much so that she could not continue her school. The hemorrhoids had such an injurious effect on her eyes that she could not read without the aid of glasses. Had had "quinsy sore throat" several times every winter during the last ten years excepting last winter, which was passed without an attack.



For one or two years past, except during the last two weeks before she came to me, she had been unusually free from headaches, colds in the head, sore throat and dyspepsia. The attack for which she consulted me commenced on May 31st with short breathing which was occasioned by a tickling cough. At the same time she had weak eyes, which soon began to itch so severely that she occupied her time, for half an hour after going to bed, in rubbing them. The severest sneezing fits were usually after she had been in bed for a few minutes or until the bed clothes got warm. She wet handkerchiefs by the dozen.

1301. Mr. L. M. R., *et.* 47 years, a merchant of this city, consulted me Sept. 3<sup>rd</sup>, 1875, for treatment of a pronounced and long standing case of "Hay-fever." Every year since 1863 he had had to go East, North, or West for relief. Had tried almost everything, but found no relief; had no faith in anything except high altitudes.

*Early History.* He had been liable to take cold all his life. Never did take good care of himself; is not able to do so now. (It was evident that when he did not have the attack he did not have the least thought of the consequences of his ~~careless~~ indiscretions.) The itching of his eyes almost always commenced in the ~~evening~~ <sup>morning</sup>. The dust of his store was his great dread. He said "When I start to sneeze I believe that I would sneeze my head off. If I did not cover it with a handkerchief and my soft felt hat. I have tried to see how long I would last without my handkerchief, but I did not have the courage to stand it long enough to see if it would stop while my head was uncovered."

1302. Clara T., *et.* 8 years. Sent by the late Dr. Frank Porter, of this city, consulted me Sept. 29, 1875. Was first attacked with sneezing on Aug. 24<sup>th</sup> of that year, while she was gathering flowers. At this time she got her face poisoned by "poison ivy," which laid her up in bed for nearly two weeks. After she recovered from this inflammation, the sneezing would instantly commence as soon as she went into the sun or looked up into the sky on a bright day.

*Previous History.* She had always been a small, nervous child; tonsils enlarged since infancy. Had had ear disease and rupture of the membrane of both ears when about four years old; but had no trouble with her hearing. Slept constantly with her mouth open and made a very loud, snoring noise while breathing. For two or three years she had to lie on high chairs during cold weather, to enable her to breathe without disturbing the members of the family.

1303. Miss Emma C., of Trenton, Mo., *et.* 26 years, consulted me July 24<sup>th</sup> 1876, for relief of "rose-fever." She was attacked with this complaint two years ago. The first year the attacks were not very frequent nor severe, but the disease increased each year since. The attack commenced this year on 25<sup>th</sup> of July, while enjoying herself at a picnic in the woods. It was so severe that she held her head down in her lap for nearly one hour before she could endure the light, her eyes being much more affected than her nasal passages—that is, they were far more painful. She was enabled to go home after tying three thick veils over her face and around her head. After she arrived at home, she had a severe chill and a high fever during the first part of the night.

*Early history.* She had had chronic catarrh for many years, and with it a cough every winter.

1304. Mr. James L., a merchant of this city, *et.* about 38 years, consulted me on June 6<sup>th</sup>, 1876, on account of a severe cold in the head. He had been a



victim of hay-fever for about four years. Each year his complaint commenced about the 20th of August.

Examination by the pharyngeal mirror revealed nothing unusual except chronic inflammation.

*Early History.* At first he said he had not been subject to frequent colds while a boy, but upon conversation with his father, recollected that he had had a cold fever very severely when seven years old, which left him very weak for several years, especially during the winter months. When 20 years old, the late Dr. Pope took a large tumor from his nose; he had forgotten which side; at that time his mother told him he had a bad breath.

**1305.** Mrs. G, æt. 52 years, a German, from Quincy, Ill., consulted me on June 24th, 1877, for excessive fits of sneezing. She would sometimes sneeze as many as eighteen or twenty times before stopping, but usually not more than ten or fifteen times. These attacks would come on every ten or fifteen minutes or half hour. As she was quite a heavy woman, these sneezing spells worried her very much. These attacks commenced five weeks previous to her visit to me, and were constantly increasing.

Examination showed excessive redness of the mucous membrane, which was much swollen, both nostrils being closed.

*Early history.* Up to the age of 22 years, the time that she was married, she was always sickly. She had sore throat almost every winter, and a bad cough. Had headache until she was about 40 years old. Always had trouble in clearing her throat in the morning, and was sometimes quite sick at the stomach after, and while coughing.

I treated her for chronic nasal catarrh. The treatment lasted until July. The first three days, once daily, then three times a week until June 11th, then twice a week until July 5th.

She has remained well since that time, but has received five or six treatments for her chronic nasal catarrh during Oct. 1883 and once in April, 1884.

**1306.** These histories prove the truth of the proposition stated; namely, that pruritus rhinitis catarrhalis is one of the sequences of chronic nasal catarrh.

### **1307. Local Symptoms Subjective and Objective**

It is impossible to give these so definitely that they may represent every case that may come under the reader's observation, for the reason that all symptoms vary according to the age and temperament of the sufferer and the time the complaint has existed; but enough can be given to pretty fully portray the peculiarities of the ailment.

**1308. The Skin.** The skin of the nose and face is frequently the first to be affected by an itching sensation. Sometimes it is a little lightened in color, even before it is rubbed and appears as though a rash was about to break out. Then this sensation extends to the scalp to the back of the neck, between the shoulders and under the arms. In extreme cases the integument of the whole body suffers to some extent.



After the complaint has lasted about one week, and the skin has been vigorously rubbed in the attempt to relieve it of the itching, an eruption is frequently observed, resembling prurigo. Sometimes the angles of the eyes, especially the inner, become quite inflamed, which the ever present itching induces the victim to aggravate by more rubbing, until small crusts form on the irritated spots. Slight ulceration appears at the alæ of the nostrils, causing considerable suffering when the itching compels the victim to severely rub the parts for relief. The same kind of an eruption or herpetic appearance is observed around the mouth.

Some cases suffer from extreme itching on the ankles and wrists, and when rubbed, become swollen and sore; then pustules appear, which when ruptured, do not quickly heal.

Most patients perspire easily and freely; then the skin becomes excessively sensitive to even slight drafts of air, and becomes cold and clammy.

A peculiarity of the eruption is its sudden appearance and disappearance, lasting frequently but a few minutes or hours. When such is the case, the skin is very easily chafed, especially around the neck where the band of the undervest rubs the parts.

Dr. Wyman mentions a man "who had redness of the skin of the color of a boiled lobster, compelling him to keep his bed five days."

**1309. The Eyes.** The eyes come next in succession as being the most early and frequently affected, the itching — the characteristic feature of the complaint — usually commencing at the inner corners. If the left nostril has been the one more affected with the chronic catarrhal inflammation, then the left eye is the first and more severely affected with the itching. The irritation always reddens the conjunctiva, then the whole eye is suffused in tears, the lids become swollen and in the morning they are agglutinated to each other by the mucous secretions. On awaking in the morning this instantly gives rise to an attack of itching of the eye-lids, which immediately extends to the nostrils. So "unanimously," as one of my patients expressed it, does this take place, that he was unable to say which part was first affected. This condition of things lasts but a few seconds when the nostrils are completely closed, apparently on account of the tears flowing down the lachrymal canals.

The tears have a positively irritating effect on the cheeks as they flow from the eyes. When the eyes are in this condition, a bright sunlight is so very aggravating that the victim instantly endeavors to shut out the light by placing both hands over his face. A dark, cool room is the only place in which he can quickly recover from his attack.



A peculiarity is, that after the attack, the congestion of the blood vessels as suddenly disappears as the attack appeared, leaving no visible trace behind, although in some cases styas are apparently the result of excessive hyperemia of the lids.

**1310. The Nasal Cavities.** The nose is sometimes the lesion from which the pruritic symptoms originate. These may be started by a slight push in any direction but especially if given sideways. I had one patient whose principal agony came from minute boils that formed, but did not entirely heal up until the season was passed. In some patients the muscles connected with the nose were in a most continual spasmodic contraction, a kind of choreic condition just previous to an attack of sneezing. The nasal passages, according to Barst and Wyman, are the parts that most frequently suffer first and most severely. The sneezing is occasioned by the itching. The first wink of the eyes sends the irritating tears down the lachrymal canals which constantly starts the itching; this is followed by sneezing and a largely increased flow of nasal mucus that completely occludes the nasal passages. If the victim blows his nose, as he feels inclined to do, this will aggravate the matter, by causing a full, sore sensation in the cavities.

**1311.** It is remarkable that the excessive congestion of the mucous membrane does not more frequently lead to nose bleed. I have seen but few. Wyman mentions a case that had nasal hemorrhage; I have seen

As soon as the paroxysm is passed, the passages slowly open so that respiration can be carried on through them. The nostril that was usually obstructed during the chronic catarrhal stage will be the occluded one during the paroxysms.

As the paroxysms are most severe and most frequent in the mornings, the nasal obstruction will occur at this time of the day also.

**1312.** The quantity of the nasal discharge, in one morning, varies from wetting five or six handkerchiefs to twenty. In the older cases, the secretion is of a watery nature except at the close of the season, when it is somewhat "sticky" but with those who have had "but two or three seasons of it," the secretion is always "sticky," and towards the close of the season, the purulent character is quite marked.

In a few cases a spurt of violent exercise, to the extent of producing a gentle perspiration has an opening effect on the nasal passages, and a quieting effect on that day's attack.

In every patient the mucous membrane was observed to be in an excessively hyperemic condition, and of a dark, purplish-red color.



blood-vessels, usually plainly visible during the chronic catarrhal were not in sight.

The sense of smell is always obtunded, and odors, that before pleasure while not causing the least irritation, have usually a disagreeable effect, but still unrecognizable.

**113. The Pharyngo-Nasal Cavity.** The pharyngo-nasal cavity is always less severely affected than the nasal cavity, but an itching sensation is felt here also. The only means of relieving this part is by spitting, retching or vomiting. All of my patients had the coughing spasm, and most of them had the vomiting.

The mucous membrane, while not of so deep a red color as the superior turbinated processes, was quite a dark red, and in some patients the membrane had an oedematous appearance.

The subjective symptoms due to inflammation in this locality are uniformly felt in the throat, and for this reason patients try to relieve themselves by coughing.

**114. The Velum and Uvula.** The soft palate and the uvula are frequently the seat of an itching sensation. In severe cases, and at the close of the season, the velum is frequently in a parietic condition much so as to allow fluids to pass up into the pharyngo-nasal cavity and nostrils. In a few cases the uvula is slightly oedematous; in one patient it was so dropsical that it almost filled the whole space between the enlarged tonsils. In this patient the sense of suffocation on assuming a horizontal position, was so great that he slept in an arm chair all night. In some the uvula is so much elongated that it acts as a foreign body in maintaining the cough.

**115. Eustachian Tubes and Middle Ears.** The itching sensation sometimes extends up the Eustachian tubes to the middle ear. As soon as these cavities are reached a fine sticking sensation is experienced in the root of the tongue, showing the corda tympani to be affected. In about a fourth of my patients their hearing was greatly decreased.

**116. Fauces and Larynx.** On account of the excessive effort to relieve the throat of the itching sensation by coughing, the whole is much congested and in an excessively sensitive condition, so that it requires some dexterity to make an examination and to apply the spray producers.

The parietic condition of the faucial muscles is sometimes observed, in this the parts lose their proper sensation to such an extent that it is quite a labor to swallow food.

**117. The Tonsils.** The tonsils are not often swollen, but are frequently quite painful, and are particularly so on swallowing. This pain



is sometimes felt up in the ears, or if one tonsil alone is affected, the corresponding ear is the one in which the pain is felt, and the hearing this ear is always defective.

When both tonsils are swollen and painful, and the nostrils are closed, eating and drinking is a somewhat dangerous operation, on account of the liability of the food being either driven up into the pharyngo-nasal cavity or allowed to partly pass into the larynx; in which case there is a severe and spasmodic coughing, and threatened asphyxia.

If the nostrils are occluded, so that respiration is carried on through the mouth, the lips, gums, tongue, soft palate and throat all become dry and parched, and all seem as though it were impossible to move or use them; but as soon as a little water is taken into the mouth and made to bathe all the parts, these conditions pass away.

The secretion from the throat is quite tough if it is not profuse, and the effort to get rid of it frequently maintains the throat in a spastic condition. I have had but one patient who had severe itching in the roof of the mouth; all the others had this sensation in this local spot but slightly.

**1318. The Trachea, Bronchial Tubes and Lungs.** The itching extends from the nares to the larynx, and thence to the trachea and lower air passages. This sensation is the sole cause of the spasmodic action of the lower air passages, or in other words, the asthmatic symptoms.

The cough does not commence until the parts are very much irritated by the endeavors of the victim to relieve himself of the itching. For this reason the cough is observed in the second and third weeks of the pruritic season. The itching is sometimes felt in the trachea or at least the victim asserts that it is deep in the chest, where one would locate the wind-pipe.

If the sufferer is awakened by the itching sensation in the face, eyes or nose, before he gets through attending to these parts with his hands, his tongue is called upon to relieve the same sensation in the roof of the mouth, and a rasping cough is raised for the purpose of relieving the throat, and instantly on this attempt being made the same sensation is felt in the larynx, trachea, and even in the bronchial tubes.

**1319. Deceptive Sensations.** The sensation experienced in the throat is occasioned by the itching in the pharyngo nasal cavity. This is easily shown by the application of a soothing remedy applied by the spray producer that throws a vertical stream. If this is the case, then it is evident that coughing or clearing the throat will not relieve the irritation located up behind the soft palate, at least



ve inches above the vocal cords, the locality of the cough, and it is so evident that the less the patient coughs, the less will the vocal cords, the larynx and the throat be irritated, not to mention the effect of a fruitless cough on the air passages in the lungs.

Some patients are so wearied by their efforts at coughing that they can hardly stand; the cough is especially fatiguing if the expectoration is scanty. In these cases, the endeavor is to relieve the itching sensation of the throat by efforts at retching, which frequently result in vomiting.

**1320. The Voice.** The voice is soon affected, so that hoarseness is a constant symptom after two or three weeks coughing. The color of the vocal chords is the same as that of the surrounding mucous membrane, instead of being a pearly white resembling the sclerotic coat of the eye.

**1321. Asthmatics.** Toward the latter part of the pruritic period the symptoms seem to be still less severe in the eyes, face and nasal passages. At this stage a slight cough is sufficient to bring on short breathing or asthmatic symptoms. I am satisfied that if patients could be relieved of the irritation in the pharyngo-nasal cavity, that produces the desire to cough, asthma would not be likely to follow. Patients who have but slight cough are free of asthma, while those who commence early to cough, both frequently and severely, were severely afflicted with asthma; in other words, the milder the cough, the milder the asthma.

**1322.** A dinner, made hearty by the use of stimulants, is apt to induce short breathing, but it is not a genuine attack like the one that comes on immediately after the first coughing spell on retiring for the night; these attacks cause the victim to jump out of bed and grasp any object for support.

As the pectoral and intercostal muscles are severely exercised in coughing, this may give rise to a pain in the chest, which may fill the patient with fear lest his lungs are becoming seriously involved, but even a slight examination will soon show that they are not seriously affected, although mucous râles may be heard. These râles will pass away in a few hours, perhaps to appear again after the next paroxysm. The attacks of asthma that follow retching without vomiting always last longer than when there is vomiting. Why? Because the act of vomiting clears out the pharyngo-nasal cavity quickly, whereas the retching alone does not do so, showing that irritation in this cavity can have a marked effect on the lungs, as well as on the larynx.

**1323. The Heart.** Palpitation of the heart is a frequent accompaniment of this complaint; so is an intermittent pulse. Most patients complain of soreness in the region of the heart after they have



recovered from their asthmatic attacks. The pulse is not more frequent than would be expected after the bodily exertion of the paroxysms. Many of these patients live under the impression that they have heart disease, but this organ is not affected except in sufferers who have had chronic nasal catarrh for thirty-five or forty years.

**1324. Constitutional Symptoms.** A statement of the constitutional symptoms must, of course, include much that has been said concerning the local manifestations.

A large proportion of these patients are so unobservant of their condition that it is difficult to learn that premonitory symptoms have existed. A few patients state, after being questioned several times on the subject, that they feel as though they are weaker or more nervous; that their appetite is not as good as usual; that their urine is a little more highly colored; that they do not sleep as soundly, and that they feel peevish and cross. Most of these initiatory symptoms are entirely ignored by at least two-thirds of my patients. Those who did have any or all of these initial symptoms, state that they probably commenced a week or a little more before their anticipated attack, but are the strongest during the three or four days preceding the attack.

**1325.** Some patients thought that the **mental anxiety**, concerning the attack had something to do in bringing on these symptoms, together with their loss of sleep, appetite, etc.

With a majority of patients, the system is not disturbed until they have suffered for nearly a week. Then they experience chilliness followed by flashes of heat; their hands and feet burn so severely that they feel compelled to bathe them in cool water; not cold water, as the latter always causes pain. Some prefer tepid water.

While they feel a slight burning heat over the whole of the body, yet when a cool wind strikes them, especially on the face, they begin to shiver instantly, this is frequently followed by an attack of itching and sneezing. Some patients are affected with night sweats.

**1326. Palpitation of the heart** is a very common complaint, as well as a soreness or uneasy sensation in the left side of the chest, especially after sleeping on that side. With many the pulse is slightly accelerated and intermittent.



All patients complain of a **want of appetite**, not only this, but they lose the sense of taste to some degree. Warm drinks are the best pleasant, and hot soups keeps their place throughout the entire attack, as being the most nourishing and grateful.

With the diminution of the renal secretion, there is constipation of the bowels. Some patients are afflicted with diarrhoea, but this is rarely always found to be due to some indiscretion in eating. Indigestion and all its usual consequences, is almost always present.

**1327.** All patients are **mentally depressed**, are fretful and easily angered, and are much given to fussiness about their meals. Forgetfulness is one of the concomitants, as well as an impossibility to continue a long time in any train of thought. Many expressed very grave doubts as to their sanity, or were fearful that their mind would give way under the terrible stress. The failing or wandering of the mind was most frequently experienced at night, on waking out of a sleep when attacked by a sneezing spell. Two of my patients were so much terrified by some unaccountable fear, that they would not sleep in a room without a light. These terrors would even follow them in sleep and cause them to moun loud enough to awaken those in an adjoining room. These mental symptoms are always the most severe with asthmatics, and those who have the fall attacks or so-called autumnal calarrh.

**1328.** It is remarkable that some of my patients, such as are described above, will undergo these attacks and suffer from all of the symptoms, and at the end of the season proclaim themselves in good health, and, because a few people have claimed in the public prints and in small works on this subject, that they are better after suffering from these attacks, they will "follow suit" and make the same expressions; yet every one of them, if carefully interrogated, will give evidence of the yearly weakening of the system, and loss of sight that would not have occurred were it not for these attacks.

**1329. Course of pruritic rhinitis.** Some authors who have written on this subject, employ language, in describing the attacks of the complaint, that plainly indicates that they are not averse to using the marvelous; so much so, that their remarks concerning its peculiarities require that the exclamation point should conclude their sentences. Early the whole tenor of all they say is gauged on this. Even some of the sufferers themselves seem to enjoy this extravagant mode of expression, as seen from the stories they give of their symptoms. Brooklyn's world-famed divine took the lead in this style of describing his



case. He showed his fondness for the graphic in detailing his attacks, and one would be really excusable in thinking that he was in rather good humor with himself while giving his account of them. I do not mean to question the correctness of what he said, but I insist that the exhibition of the marvelous is manifest and is misleading.

**1330.** The point I wish to make is this. If a complainant's symptoms do not come up to this marvelous gage, or his expressions are not given in this key, they are, without exception, not included in the hay-fever list. consequently, the true commencement of the complaint is not observed, because the first, the initial manifestations are so very slight, that even the victim himself does not recognize the tendency of his symptoms. For this reason there is no opportunity for flights of rhetoric in describing his feelings.

**1331.** Not long ago, I had a patient say: "I would believe that I was affected with hay-fever, if I was not so well acquainted with the symptoms of this disease. My uncle has had it for many years. He has it on the 12th day of June every year, at the same hour in the morning and it leaves him in just five weeks, whereas my symptoms last different lengths of time, and may come on at almost any time of the first four months of the year."

I know of a gentleman who said: "I had my first attack on the 20th day of April and it lasted until frost, at the same time I was in good health. I had no regular time for my itching and sneezing, neither of which were severe. I sometimes have it one time and sometimes another. One year ago I had it in February; this year it commenced in May. One time I had it in the last week in December; this was three or four years ago. I had almost forgotten it. I am sure that it is getting worse every year, and may be it will turn into real hay-fever if it is not stopped."

This is a fair history of at least thirty per cent. of the cases that have so far come under my observation.

**1332.** The forgetfulness of these patients, which is almost proverbial (at least with those that I have seen), makes it difficult to get an accurate and full history of their condition before their attack, but careful interrogations, made from time to time during their visit for treatment, will always elicit the fact that they had attacks of itching of the eyes, face, nose, etc., with sneezing during the late winter



and early spring months, and that they were thus afflicted for from one to seven years previous to the full formation of the complaint.

This view of the commencement of pruritic catarrh can only be established by facts obtained from patients. This I propose to do by giving the histories of a number of patients who have suffered more or less from this complaint.

1333. Mrs. A. E. et. 47 years consulted me Aug. 25, 1883. Complained of having a severe cold in her head and disease of the right antrum of Highmore. Since the middle of July, 1883, she suffered from what she thought was a common cold, accompanied by severe sneezing and itching of the eyes and throat. On her first visit she stated that she did not have these symptoms at any previous time, but on further conversation on this subject, on the 5th of Sept. following, she remembered having had these "sneeze spells" during the warm weather of the past five years, and that they had been gradually getting worse. These sneezing spells were accompanied by symptoms of asthma, that were more severe this year than at any time previous.

1334. Mr. R. L., et. 44 years consulted me June 13th, 1884. He had had pruritic catarrh for 25 years, but not very annoying until 10 years ago, since which time he had noticed that he took cold more frequently in warm weather, and he was not able without much suffering in the spring, when the "fuzz" was blowing off the trees, his eyes became inflamed and all of his catarrhal symptoms were much aggravated. Towards the close of the season he had symptoms of asthma. He was sure that his "warm weather catarrh" had become more aggravated each year, and that his asthmatic symptoms.

1335. Miss M., Collinsville, Ill., et. 26 years sent me, on June 3d., 1884, by Dr. Wesseler, of this city. Complains of sore throat accompanied by a severe cough and short breathing.

In June 1873, upon sweeping the floor or making feather beds her eyes commenced to itch and she immediately began to sneeze. These paroxysms lasted for nearly an hour. Before this date she had the same sneezing now and then, but never so severe. These symptoms did not increase until Jan. 1883, at which time she took a very severe cold. She was certain that she sneezed every month since that time, especially since last Christmas. At present she sneezes only when she is in a draught. Not otherwise except when exposed to dust from a carpet.

Just before she sneezes she experiences itching over the eyebrows. The symptoms of sneezing are occasioned by emanations from a rose or other flowers.

1336. H. W., et. 13 years, consulted me July 3rd, 1883, complained of sneezing, swollen eyes, sore throat, general debility and his nose bled every day sometimes several times a day; he takes cold easily, especially during warm weather. When he was an infant about 3 or 4 weeks old he took a severe cold.

His mother thinks this was the foundation of his catarrhal trouble. In three or four months after this, took another severe cold and had inflammation of the pleura. He did not take cold like most children, but had a watery discharge from his nostrils like an adult. Fresh hay did not have any irritating effect, but old dusty hay always brought on paroxysms of sneezing. His mother does not remember his sneezing continuously as he does at present, but knows that he has been rather sensitive to all kind of dust since he was



three or four years old. Had not bad attacks of asthma until the fall of 1882. All of his symptoms remained the same until 1880. Since then they have been increasing rapidly.

1337. Mr. A. A. set. 17 years complained of sneezing and itching of the eyes. When he was 8 years old he caught a severe cold in the ears, that affected him for nearly a year. On July 18th, 1875, while in Concord, N. H., he went into a hay field and was attacked with sneezing, which was so severe as to compel him to return home. The paroxysms did not fully discontinue until evening, at this time a feather dipped in quinine was put up his nose, which made him sneeze more severely, and had the effect of maintaining the attack for nearly the whole of the night. This application of quinine was kept up for some time, with the effect, as his mother now maintains, of producing a chronic inflammation of the nasal passages. On the discontinuance of the quinine his paroxysms ceased. At first his physician thought that he had hay-fever, but as he remained well and was able to pass through hay fields and play in hay it was concluded that he did not have the complaint. The next attack of sneezing occurred in the later part of May 1876. On his re-appearance some of his friends thought he had hay-fever, but after consultation with a physician it was concluded that it was only a cold in the head. The next year he again had the paroxysms in May at which time he was sent to Iowa where in a few days all symptoms disappeared. In 1878 he had but few paroxysms of sneezing. In 1879 the complaint developed itself in full force for which he was treated by three physicians. In 1880 his attack was postponed until the 15th of June, and for three weeks it was very severe. On the 12th of August in the same year it again commenced and continued for about one week, toward the end of September he had a third attack which lasted him for two weeks. In 1881 he did not experience any sensation until the end of September. In 1882 had it slightly in August, and a severe attack of it the first week in October.

1338. Mr. W. H. M. set. 42 years, consulted me May 12th, 1883. "For three years I have been subject to taking cold far more frequently in warm spring weather than during winter. My colds have been so severe that I have lost my voice. My eyes have been weak and watery at such times and I think they itched last spring and may be a little the year before, but at present I have to rub them to relieve them of itching which is now quite severe. I have sneezed a good deal for several years, but had not thought of having hay-fever."

1339. The above histories plainly establish the fact that pruritic catarrh manifests itself by slight symptoms at first, and that these gradually increase in severity until it takes full possession of its victim, and becomes so violent in its demonstrations that it forces recognition from every one.

1340. The course of this complaint after it has fully manifested itself is of interest to the physician. From it he can determine whether or not the complaint is decreasing or increasing under his treatment.

To describe the course of this complaint, I will be compelled to take the stages as they usually occur.



**1341. Stage of Non-recognition.** This is the most important stage; it commences at any time from the last week in December to the first week in July; but the period for the most frequent attacks is in May and June. The victim has been subject to colds in the head for years; he has indulged in reading at night or has smoked at night, then his eyes have itched, which he may have attributed to the smoke of his cigar; and he sneezed a little. Even if he is not of the age to use glasses, he will be apt to question himself concerning the failure of his sight, and will seriously think of doing something for this disability. He will notice that they are sticky in the morning, and that they are apt to water if he suddenly goes into the light; also that this may be accompanied by a few sneezes.

If these symptoms are marked, the usual symptoms that he experienced of his chronic nasal catarrh will be proportionately lessened, showing a marked metastasis of the former complaint to the new one. Indeed, this characteristic is observable in all stages of chronic catarrhal inflammation of the nasal cavities and all of its sequelæ, pruritic catarrh not excepted. I had one patient who imprudently ate some canned apples in June, at a time he was suffering from his attacks, which gave rise to a bowel complaint that resembled cholera morbus. While ailing with this disease, he was entirely free from his slight symptoms of pruritic catarrh, and from his severe headaches, the result of chronic nasal catarrh.

These irregular attacks of itching and sneezing may last for a few months or perhaps for several years, but when they assume a severer type, they then take on more regular dates of commencement and discontinuance, and the complaint is then given the name of rose-cold or June-cold or July-cold, according to the season of the year in which these regular attacks occur.

**1342.** This brings us to the recognized pruritic catarrh, or the early form known as rose-cold or June-cold. The facts herewith given will show plainly that



the earlier the attacks of pruritic catarrh, the less chronic the complaint, and *vice versa*.

While these views are not acquiesced in by any author that I have seen, yet I will quote from them passages and histories of cases, that will prove that I am right. The two symptoms, the cough—which comes from pharyngo-nasal irritation—and the asthma, that are taken to show the degree of the severity of the complaint, increase as the age of the complaint increases. This is shown by Dr. Beard, on page 111.

1343. Of 17 May cases, 4 had neither cough nor asthma, 7 had both.

Of 13 July cases, 3 had neither cough nor asthma, 4 had both.

Of 55 August cases, 9 had neither cough nor asthma, 46 had one or both, demonstrating that the latter in the season the attacks occur, the more severe the complications. Further he says: "Others, who during the first years have the early (May) or the middle (July) form, subsequently have the late form (August)."

In corroboration of this, I will quote from Dr. Wynne. He gives on page 148, the histories of cases exactly similar to quite a number that I have had under observation viz:

"Dr. A. W. W., of Chicago, Ill.—Has suffered since his eighteenth year, though for ten years it took the form of 'croup-cold' or 'June catarrh.' Finally six years ago the June affliction was broken up by Jonas Whitcomb's remedy, and I was congratulating myself on a cure when August came and brought with it the 'big brother.' Since that time I have no further trouble in June—save it all for August."

On page 149 Dr. Wynne says: "The June cold is less severe and of shorter duration; the eyes are less sorely and less constantly affected, the cough is much less constant, and not so moderate in the degree of pruritus attending and vomiting; asthma is less frequent at the close, but when it exists is sometimes more severe." . . . . .

"Those who have June cold are seldom subjects of Autumnal catarrh. When June cold has existed it has generally ceased on the appearance of the latter disease."

On this page he gives the history of some cases illustrating what I have quoted: "Mrs H. at the age of 18 first noticed that she was affected by the aroma of roses. The following year, while picking roses in the morning, had itching of the eyes, which became so intolerable by afternoon that she asked medical advice. After this she could not



be in a room with any flowers without affection of the eyes and catarrhal symptoms. This state of things continued about ten years, when she began to have regular Autumnal catarrh, and the sensitiveness to flowers very materially decreased, but has not entirely disappeared."

On page 150, are the following cases.

"Case 40. — The yearly attack formerly commenced in June; now it commences between August 20th and 27th, and terminates September 10th to 20th."

"Case 65 — Mrs. M. — At 16 had catarrh commencing in June and ending about July 4th, or during haying time. This occurred annually for 17 years. Five years ago, after some irregularity in its period of termination, it ceased altogether, and a catarrh appeared about August 1st, when near Fall River, Mass. The three subsequent years she was in Oregon, Illinois, when it appeared August 17th, and this year [1868] while in Charlestown, Mass., August 24th."

On page 151 is the following case:

"Rev. J. H. W., who had been a subject of June cold from early infancy, writes: "But it has changed. It always had begun in June and continued until the middle of July; but about ten years ago it began to reappear in Autumn. Now it has almost transferred itself from June to September. *E. g.* this year [1872] I have had two bad days, one in June and one in July. Last year it was about the same; but with September came three terrible weeks, part of which I had to give up and take my bed, for the first time in ten years of preaching I lost a Sunday's duty from this cause."

1343 (a). Many other cases of the same character could be quoted from these and other authors. I have the histories of over 20 patients who bear the same testimony.

This demonstrates the difficulty in giving the course of this complaint, as it differs according to the age, temperament and exposures of the victims.

As soon as the complaint has sufficiently marked symptoms, the patient will complain of an itching of the eyes, but this always occurs after an exposure has resulted in a cold being taken.

1343 (b). If the itching lasts for a few minutes, the same sensation is experienced in the nose, then the sneezing comes on, first only a few of them, not enough to call his or her friends attention. The next day this same course is experienced by the victim and is observed by his friends, then (in the majority of instances) they tell him that he has the hay-fever.

At first his attacks are not so severe, and after they have passed away, he invariably thinks that "it may not be hay-fever, after all." I have not seen the victim of pruritic catarrh that did not say this or use words to this effect; not only this, if they pass one day,



they as invariably forget to take any precautions to prevent a recurrence.

After they have had an attack for about a week or two, they may begin to have a cough, but this is far from being constant, except when the complaint has grown to be a few years of age, then asthma in a mild form may affect the patient.

All the previous symptoms of chronic nasal catarrh will disappear as these new symptoms appear, yet the patient will not mark the absence of his old symptoms unless reminded of it by some friend or some unusual circumstance.

At this age of the complaint, there is no premonitory stage, at least very few patients can remember anything that would resemble that experienced by older victims.

The duration may be a few days, or one or two weeks, according to the care the patient takes of himself, and to the exposures that he must encounter; about ten days is the average duration. If the first on-set passes off in three or four days, his tormentor may return with redoubled force. The date of appearance is always uncertain in such cases, and it may be sudden or it may be gradual.

**1344. The Attacks that Occur in July.** I do not mean by thus dividing the description of the attacks of this complaint, that they are different diseases but that they differ only in severity. A good illustration of what I mean is the intermittent, remittent and continued forms of fever, which are not three separate diseases, but three grades of severity of the same disease. On this point I agree with Dr. Beard, who says on page 110: "The unity of the different forms of hay-fever, occurring early in the summer, in mid summer or late in the fall, is proved by the following facts:

"The symptoms in all three forms are the same in kind, differing, if at all, in degree only. The distinctive symptoms—the sneezing, itching, discharge from the nose and eyes, swelling and obstruction, cough and asthma, with the febrile state, nervousness, languor, debility, and depression—are experienced in the early and middle as well as in the latter forms."

**1345.** As seen from the table showing the dates of attack (page 629), the number attacked in July is not greater than in June, but the severity of the attacks is always greater.



Some might say that, according to my theory, the number also ought to be greater. It does look that way at first sight, but this can easily be explained. The early attacks are made more frequent by the greater liability to take cold, because the season of the year tends to cold-taking. Many of these attacks would not have occurred were it not for some indiscretion that could have been easily avoided and would not have happened in warmer weather if the victim had taken care. Thus the number of sufferers would be decreased in proportion as the mildness of the season made it possible for indiscreet persons to be careless of hygienic measures, without taking severe colds. The symptoms of this form, the July attacks, do not differ in the least except as to severity and duration. More of them have cough and asthma and the attack lasts longer. To repeat them would lead to confusion.

**1346. The Attacks that Occur in Autumn.** This is THE SEASON for the attacks of this complaint after it is well formed, but the symptoms of this state also differ only in degree of severity and duration, that is, with the average number of cases. Some of the mild autumnal grades are very much less severe than some of the severe forms of the July or May forms. But few victims of this form escape the cough and asthma.

A peculiarity of this stage is that the victim sometimes outlasts the complaint; that is, the attacks, after coming on regularly for a number of years, slowly decreases in severity and then ceases altogether. I have seen two cases of this kind. Dr. Beard relates three cases that "finally disappeared entirely."

**1347. Causes of the Paroxysms. Dusts.** Dust of various kinds stand at the head of the list of the causes of paroxysms, and the dust of the steam cars is the most aggravating; as this is always accompanied by sulphureous smoke from the locomotive. The next kind of dust that is to be avoided is that from an old carpet, then that from an old feather bed, then from a moss bed, after this comes the dust from old, mouldy hay and from the street. It must be remembered that in the formative and early stages, the cause of the paroxysm is not attributed to dust alone; there must be a susceptibility, and one or more other irritating agencies at work, as sunlight, heat,



excessive exertion, sufficient to cause perspiration to contribute to this result; but dusts, of the kind named, seems to be the most prominent.

**1348. Bright Sunlight.** Any kind of very bright light, but especially strong sunlight stands next in the list. If the victim should lie with his face to an unshuttered eastern window, and suddenly open his eyes so that the full morning light shall fall upon them, an attack is almost certain.

**1349. Exhaustion from heat.** Over heating the system stands next as an irritating influence, but with this there must also be over-exertion to the extent of exhaustion. As these patient are easily wearied, even moderate exercises may lead to exhaustion.

The remainder of the list of irritating agencies named as they have proved to be the most noxious, are as follows:

Hay, old and musty, and fresh.  
Sneeze or rag-weed.  
Sulphur matches.  
Smoke.  
Draught of damp air.  
Flowers  
Air of a mouldy room.  
Cold damp winds.  
Tobacco smoke.  
Foggy mornings.  
Night air.  
Damp cloths.

Of the mental conditions; manifestation of excessive ill temper, anxiety, and melancholy are the most prominent. Indigestion is a frequent excitant of an attack.

**1350.** The sudden, in fact the instant response of the Schneiderian to the irritating effect of the most of these agencies, apparently leaves no period for the incubation of parasites. Notwithstanding this, I presume that some one will soon lay claim to the discovery of bacillariæ peculiar to or may be a cause of this complaint. The effects of these irritating agencies are so instantaneous, that there is no opportunity for imagination to act on the victim, as the attack is a surprise to every one of them, nor do they know positively, for some time, the cause of their paroxysms.

**1351. Diagnosis and Prognosis.** The characteristics of increasing severity of the successive stages of this disorder are plainly demonstrated by the TABLE facing this page.

**1352. The first or formative stage.** Presuming that the reader has scanned this table, the work of presenting the diagnosis will be materially shortened.

In proportion as prevention is more important than



# DIFFERENTIAL DIAGNOSIS OF THE VARIOUS STAGES OF PUERPERIO RHINITIS.

COLDS IN THE HEAD	FIRST OR FORMATIVE STAGE	SECOND STAGE OR MAY AND JUNE FORM	THIRD STAGE OR JULY FORM	FOURTH STAGE OR AUTUMNAL FORM.
No itching of the eyes, nose or throat.	Very slight itching of the eyes, nose and throat, especially after a prolonged cold.	Itching of the eyes, nose and throat, one of the most prominent symptoms. The skin is also sometimes affected.	The most marked symptom is the itching of the eyes, nose, facial skin, throat, vagina, anal cavity, perineum, labia, etc. It is frequently attended with an eruption as a sequence.	
Sometimes eyes-jaund, but never in pure jaundice; not more than three or four at a time.	Sometimes more acute jaundice with an occasional cold, frequently attended with a slight eruption at a time.	Sometimes quite a prominent jaundice, but never more than a few days at a time. The eruption is confined to the hands, feet and face.	Sometimes is so frequent that it is quite a jaundice. It is in severe cases, after a cold, the first one or two are on the face, the rest on the hands, feet and face. The eruption does not keep the hands, feet and face without it.	Sometimes is a form of jaundice; some patients fall from it, or it is during the jaundice. Almost no eruption is a complete jaundice, but it is a complete jaundice to the face, hands, feet and face without anything to the face.
Eyes, but slightly. Eyes more than usually at all affected. Lightly and not inflamed. Lightly and slightly disagreeable effect.	Eyes more than usually at all affected. Lightly and not inflamed. Lightly and slightly disagreeable effect.	Eyes suddenly afflicted with tearing; eyes this all greater than usual, and are puffy; with even after the cessation of attack is disagreeable.	Eyes suddenly afflicted with tearing; eyes this all greater than usual, and are puffy; with even after the cessation of attack is disagreeable.	Eyes blinded with profuse lacrimation. Eyes greatly inflamed and quite puffy. Eyes cannot be opened at any time during the most of the puerperio season.
Not aggravated by any kind of hay or any kind of flower, but irritation is not observed until the eyes are subjected to the irritation.	Not aggravated by any kind of hay or any kind of flower, but irritation is not observed until the eyes are subjected to the irritation.	A little more than one-half of them are affected by hay, very few by weeds or early flowers, but from a carpet is the most irritating.	A little more than one-half of them are affected by hay, very few by weeds or early flowers, but from a carpet is the most irritating.	Very few are affected by hay or any other early flowers, but every one of them are affected badly by the most generally from an old carpet and from flowers, the latter has an almost immediate choking effect.
No regular time for attack.	Time of attack, January to July.	Time of attack, May and June.	Time of attack, July.	Time of attack, from August to November.
No asthma or anything at all severe or out-put of any kind.	Asthma, breathing, and sometimes spasmodic.	Asthma, breathing, and sometimes spasmodic.	Asthma, breathing, and sometimes spasmodic. If it lasts long.	Severe attacks of asthma especially toward the end of the season. Cough is always spasmodic.
Not relieved by a change of residence.	No observation made on locality of residence.	The woman says that it is not relieved by a change of residence. It is		

The Wymen have that entire relief is found in certain medicinal preparations.



alleviation or cure, so is it important that a diagnosis of this complaint should be made as early as possible.

The only disease that might be taken for the formative stage of pruritic rhinitis is a common cold in the head. Both complaints are frequently accompanied by sneezing, but with a cold, there is no itching of the face. If itching ever so slight should be experienced, and it occurs during warm weather, then the complaint may properly be called the first stage of pruritic catarrh.

**1353.** A common cold does not attack its victims suddenly and it may occur at any season of the year; but should it occur more frequently in warm weather, then pruritic catarrh may be suspected, especially if its attacks are more sudden than usual colds, and if accompanied by redness of the eyes and a profuse flow of tears.

As stated, a simple cold in the head is more liable to occur at a season of the year that pruritic catarrh does not occur, yet it must be remembered, that the pruritic complaint is always preceded by symptoms of a common cold, and is usually, nay, almost universally taken for a simple cold for a year or two.

**1354.** While Dr. Beard, in common with all authors, ignores common catarrh as the originating disease, yet he has passages in his work that fully confirm my views in this regard; he says:

"In the first attack there is always a doubt which may not be settled until the following year. During the first attack, the severity and obstinacy of the symptoms and the season of the year are the chief causes that excite the suspicion of hay-fever. Those whose first attacks are in infancy or early childhood may not suspect the real nature of their disorder until they arrive at maturity."

**1355.** To repeat: if the suspected symptoms be accompanied with itching of the eyes, however slight, and with sneezing, and the attack be sudden and especially if all this occurs in warm weather, when colds are not liable to be taken, then it is altogether likely that the victim is suffering from the first, the formative stage of Pruritic Rhinitis Catarrhalis.

**1356.** The Second or the May and June form. At this stage, the disorder has shown itself plainly. It now stands in marked contrast to the symptoms accompanying a cold in the head.

An ordinary cold is far more liable to occur at those seasons of the year in which this ailment does not usually



occur; a cold comes on gradually, pruritic catarrh suddenly, the eyes may sometimes be a little reddened in a cold; in this complaint they are almost always quite red.

**1357.** The pathognomonic symptoms of pruritic catarrh, the itching, is not present with a cold; sneezing is observed in both complaints but far more severe in the former: a cold will not disappear so completely in a few hours as will the symptoms of this ailment. Asthmatic breathing very rarely follows a cold, but it not unfrequently follows pruritic catarrh even in this stage.

**1358.** Dust does not make a cold in the head worse, at least it does not show marked increase because of it, whereas pruritic catarrh is almost instantly made worse by it.

Usual medical treatment, such as a foot bath, a sweat, a dose of quinine, etc., will cure a cold, but with this complaint it has but little ameliorating effects. A cold has no fixed time to disappear, the other disappears in four or five weeks. The pruritic catarrh is frequently relieved by change of residence to certain parts of the country, a cold is not. A cold is aggravated by cold weather the other is frequently improved.

Nearly all these contrasting symptoms are well defined.

**1359.** The third stage or the July form. There is still less liability for mistaking this form of pruritic catarrh for a cold in the head; all of the features of the former complaint stand in marked contrast. The season of the year in which it occurs, being such that colds are not liable to be taken, even if patients are quite careless in the observance of the laws of hygiene.

**1360.** Ordinary asthma might be confounded with it by the unattended, but the absence of the itching of the eyes, nose and face would show the mistake; besides, with asthma there is much greater impediment in respiration than the pruritic catarrh, except when asthma is a sequence. With asthma a cool draught of air, from an open window is very refreshing, with the other it would be very aggravating.

**1361.** The asthma that accompanies pruritic catarrh, is always preceded by the usual itching, sneezing, etc., while in ordinary asthma, no such symptoms ever occur. The itching and the sneezing that precede the asthma of pruritic catarrh are the only symptoms



that distinguish it from ordinary asthma; in all other respects they are identical.

**1362. The fourth stage or the Autumnal form.** This stage is so peculiarly phenomenal that none but the most obtuse observer would take it for a common cold.

Every person that I have seen who had this form of this complaint, has had attacks of the earlier forms. These facts would exclude all complaints that resembled it in the least.

**1363.** Dr. Wyman, because "its existence has been doubted, and still is doubted by many, even by physicians," has taken special pains to give the differential diagnosis between this and a common cold and acute bronchitis, and has also given the points of difference between it and pneumonia and local inflammation of the eyes, but it seems to me that the physician who would mistake the one for the other must be a very poor observer indeed; just as likely would an educated medical man confound an intermittent fever, with a typhoid fever.

**1364.** The diagnosis of each of the four forms has now been given, and it seems to me that a comparative study of the symptoms of all these grades, from the formative stage through the final or Autumnal stage, must convince every one that this is but one complaint, an ailment that progresses in severity, starting from a common cold in the head, showing itself but slightly in nasal catarrh, then assuming a little more severe character in the May and June forms, then still increasing in severity in the July form, and finally culminating in the severest form, the Autumnal.

**1365. The Prognosis.** This will be governed to some extent by the stage or form that afflicts the patient. In the first or formative stage, nothing is easier to check. I fully believe that this can be affected in patients not over fifteen years of age, by hygienic measures alone. All cases not over thirty-five years of age will be cured in one or at most two seasons of treatment, while with those over forty years of age, it may take a year or so longer. Every patient that takes good care of himself will in time completely recover.

**1366.** In this stage I would not recommend a surgical operation in any case, in either old or young patient, as the scar following the galvano cautery, or caustic



acids, would be almost certain to be followed by a recurrence of inspissated masses to be blown out of the nostrils or hawked out of the throat, as soon as they attain sufficient bulk to impede respiration. These accretions will be just the size and shape of the scar. Besides being a source of very great annoyance, it might—not always by any means—produce an unpleasant odor of the breath through the nostrils. Persistent employment of the spray producers will cure them.

**1366 (a).** My experience in the treatment of the second stage, or May and June forms, leads me to say that they also will finally recover, but as the complaint has a strong hold on them, a longer time for treatment will be required, and surgical interference may be required to bring about the relief. But it must be kept in mind, as indicated above, that the smaller the operation, the better the ultimate recovery. The more confirmed the complaint, the longer will the patient require fall and spring treatments to completely eradicate the primary or originating disease, namely chronic catarrhal inflammation of the nasal passages.

The same may be said of the third and fourth forms, that is, they will require more "chronic treatment" as it were, and surgical measures will be almost certain to be required. The later in the year that the victim is attacked the longer the time will be required for his treatment, and the greater will be the need for surgical interference.

My experience in the treatment of the autumnal form, justifies me in saying that the course I have laid down in this work is followed by satisfactory results.

**1367. Treatment; Medical and Surgical.** The treatment of pruritic rhinitis is divided into preventive, alleviative and surgical.

The preventive treatment embraces the hygienic and therapeutic treatment for chronic catarrhal inflammation of the nasal passages. As catarrhal disease has so affected the patient's nasal mucous membrane as to render him liable to take the complaint, his ultimate recovery will depend upon his being treated for the primary disease, fall and spring, or at such times of the year as he is most liable to take cold.

**1368. Alleviative Treatment.** The alleviative



treatment is divided into therapeutic and hygienic, and the therapeutic into local and constitutional. The considerations of these divisions will be taken up in their natural course as they would appear in the treatment of a patient on arriving at one's office.

The patient has suffered a few days or weeks torment, and his nasal passages and throat are excessively sensitive. In examining his pharyngo-nasal cavity, do not cause him to retch or cough; while inspecting his nasal cavity do not make him sneeze by either thrusting the nasal speculum too far up his nostrils or by pushing his nose upward or sideways. Be very careful about doing *anything* that will cause him to sneeze. If a window or door of the office is open, close it immediately, as even a slight draught of air will induce an itching sensation of the face, eyes and nostrils, which, if it lasts beyond half a minute, may bring on a paroxysm in full force.

**1369. Local Applications.** If a paroxysm does ensue, and indicates that it is going to last for several minutes, give the patient a little vaseline and direct him to anoint his face, neck, head — if his hair is short — and hands; rubbing the vaseline well into his skin; have him put a silk handkerchief over his head, and his hat over that; then direct him to pull off his boots and socks, and rub his feet well with vaseline, uncovering one at a time. It is altogether likely that his feet will be found to be damp with perspiration, consequently quite clammy and cold. In this condition the vaseline will prove a very valuable remedy.

This anointing and rubbing process will materially shorten the paroxysms and lessen their severity. It will be well for the patient to repeat this course at such times as he may be attacked with a paroxysm.

If ready to make a local application, give the patient the tongue depressor, tell him to place it well on his tongue, but not so far back as to cause him to cough or retch, then, having warmed the spray producer (No. 4.



half fill its bowl with plain vaseline and about 5 grains of the eucalyptol mixture, topic 850.

1370. The mixture, after it is placed in the spray producer, **should be made so hot**, that after it is tempered with the cold air from the instrument, the spray will produce a warm, pleasant sensation. Place the point of the spray producer just behind and below the pendent velum and alternately to each side of the uvula; throw the spray up behind the soft palate, gently at first (never using a pressure exceeding 7 pounds to the square inch), observing closely the part of the mouth that is being operated upon; also watch the actions of the face and eyes. All these parts must be seen at the same time, a practice that cannot be successfully acquired without much experience.

1371. Should the patient's throat begin to contract or his eyes close, or there occur any other sign that indicates contraction of the fauces, instantly cease throwing the spray, withdraw the instrument, and at the same time request him to take the tongue depressor out of his mouth. All this must be done, if possible, before he retches. At once request him to clear his throat. This act will rest him, as holding one's mouth open for two or three minutes is a little fatiguing. Then continue to make other applications, until all the remedy is thrown into the pharyngo-nasal cavity, keeping in mind these directions.

1372. **Relief.** If the medicine has been made warm and thrown to the parts indicated, the patient will voluntarily say that he experiences a sensation of relief and smoothness in his throat; and if asked to locate the place where he feels the relief, he will at once place his fingers over and below the larynx; many of them, especially those who have a tickling cough in the larynx that has lasted for a few weeks, will place their hand on the upper portion of the chest.

1373. Next, make an application by means of the



spray producer No. 5, applying with it the same remedies, and introducing the point of the instrument in the same way as with the No. 4, using the same precautions.

**1374.** If the patient is not conscious that the stream from the instrument is going into his nostrils, it indicates that the mucous membrane is in quite an anæsthetic condition and that the inflammation is quite chronic; consequently it may be slow in yielding to the treatment.

**1375.** Third, make an application to the fauces while the patient is slowly and deeply inhaling, using the spray producer No. 1. By this instrument the same vaseline compound is applied with the addition of three to five drops of the pinus canadensis mixture, topic **853**.

This mixture has a very soothing effect on a throat and soft palate made sore by coughing.

**1376.** I usually use five drops of the pinus canad. mixt. during the first three treatments, then four drops for the next three. After this, using one and two at each succeeding treatment. If too much of this astringent is employed, the patient will complain of a slight soreness in the throat on swallowing.

**1377.** Do not make an application to the nostrils in front, because the force of the air will be almost certain to excite sneezing, which is very undesirable. After some ten or twelve treatments, the excessive sensitiveness of the anterior nares may be reduced; then a very gentle spray of the vaseline and eucalyptus may be thrown into them (**850**).

**1378.** The spray producer No. 5 is the most important instrument because it throws the remedy to the regions, the middle and superior turbinated processes, where the inflammation is most severe, this location being the site of origin of the primary disease, the chronic catarrhal inflammation. It is also the most difficult instrument to handle, because the stream of spray that issues from it is able to strike the upper surface of the soft palate and thus cause contraction of the faecal muscles.

If the pressure of the air that is used for making the spray is too great, the application may give rise to a paroxysm of sneezing, and if



fect that is quite undesirable. Most patients can bear an air pressure of 7 lbs to the square inch, but some can only endure 4 lbs.

The effect of these applications, when judiciously made, will be very agreeable to the patient, relieving him at once of many of his most annoying symptoms. Indeed, so marked has been the relief experienced by many of my patients, that some of them have made remarks as ungracious as the following: "I guess this attack will not be very bad anyhow."

**1379. Electricity.** This remedy is a valuable adjuvant, one that should be employed in every case, especially toward the latter part of the treatment. I have not been so successful in the employment of the Faradic current, but with the galvanic current, the patient will at once state that he experiences beneficial effects.

**1380.** It requires from 6 to 18 Leclanche cells to produce the desired effect. I apply the negative pole (cathode) to the lower end of the sternum, and the positive pole (anode) to the seventh cervical vertebra. By this application all five of the special senses may be excited. The sense of taste is always excited if the application is properly made; it is known by a metallic taste being experienced in the throat and mouth, proving that these two organs are under the influence of this agent. An application that does not in this way excite the sense of taste is inefficient. The positive pole may sometimes be applied with marked benefit over the nose and cheeks, care being taken to employ just sufficient strength of current to be slightly felt.

**1381. The length of time that the electricity is applied** should not exceed three minutes. One minute is the length of time that I usually employ it on new patients, watchfully lengthening the application to the full time, three minutes. Instantly reversing the current for a few times, as well as interrupting it, is frequently productive of good results. I always make the applications after completing the local treatment with the spray producers.

**1382. Constitutional Treatment.** All of these patients are habitually constipated, and their renal secretions are usually scanty. Besides this, they are in a condition of body that easily becomes exhausted, and many of them are in a state of continual weariness; therefore a laxative, a diuretic and a tonic are indicated. The bowels should be maintained quite open; at least two operations each day, for a week or two, will be beneficial.

**1383. Ten grains of quinine** should be taken each night on



going to bed. This should be continued every night until the paroxysms are reduced to about 50 per cent. of their usual severity; then seven to five grains may be a sufficient quantity. Many patients think that such doses would keep them awake, but in cases that were not severe, the contrary was the effect. I have sometimes added to the quinine, five grains of bromide of potassium with excellent results, obtaining refreshing sleep.

**1384. Surgical Treatment.** The consideration of local medication and hygienic measures being completed, attention will now be given to harsher means which are to be employed only in case the milder course has failed to give the desired relief. Before giving the description of the surgical operations most popular, I feel it my duty to protest against the unwarranted rage for rhinal surgical operations.

**1385. Remarks in favor of conservative surgery.** Every case afflicted with Pruritic Rhinitis should be treated by spray producers, until it has been proved that this method is not effective. I desire to protest against the indiscriminate employment of the ecrase, galvanocautery, caustics, etc., in the destruction of the hyperæsthetic tissue in the nasal passages, lately recommended for the relief of this complaint. This destructive method is now practiced by many physicians on every patient suffering from this disease, and to my certain knowledge, though frequently relieved the acute symptoms, there are secondary effects that are as lasting and as serious as the primary complaint.

**1385 (a).** Results that are immediately successful are always desirable in the healing art. Operations that speedily cure are justly classified as brilliant; nothing captivates the physician and patient like a remedy that promises immediate relief. By its days of uncertainty and suffering are to be banished, and, in their place, the victim is to quickly enjoy life free from torment. Especially is this result satisfactory in the highest degree, when relief relates to a complaint that all our old and respected authorities have acknowledged was incurable. B



is not an uncommon occurrence in surgery, that a new found brilliancy of an operation is dimmed by a secondary effect, and not unfrequently great damage has been done to patients before these injurious secondary effects have become generally known.

**1385 (b). Important facts.** There are several very important facts that should engage the careful consideration of every physician who contemplates performing an operation on the nasal cavities, namely: 1st., a cicatrix follows every application of the galvanocautery, nitric acid, chromic acid, etc.; 2nd., this scar-membrane is not mucous membrane; 3d., this scar-surface is always dry; 4th., the nasal secretion flowing from mucous surfaces located above it, is certain to lodge on this dry spot, and there become inspissated and be the occasion of very annoying symptoms.

I have seen scars so extensive that they covered both sides of the septum nasi and both inferior turbinated processes, and these surfaces were coated with inspissated secretion.

**1385 (c).** Nature in her beneficence to the organism, tries to relieve the parts of this cicatricial tissue, which at best is but a makeshift for mucous membrane, by contracting it to the smallest area. But if this area is extensive, the contraction will not be sufficient to remove all the scar. The surface covered by this scar is in an abnormal condition, because the scar tissue is not mucous membrane; it does not secrete mucus. Therefore this surface must and does remain dry, unless moistened by contiguous mucous membrane. Being always dry, secretion that lodges there remains there, because the heat of the parts evaporates its watery portions and inspissation is the result. As the flow of the secretion is continued, a crust will soon be formed of such bulk as will occasion an irresistible desire for its removal. The removal is first attempted by picking with the finger or thumb, which if successful, occasions much local irritation; if not successful, then the sufferer blows his nose, at first easily, but as this will not remove the crust, he feels compelled to use his utmost exertion, to relieve himself of the irritating mass. These acts are far from being healthful, as by them muco-purulent secretion is blown up the Eustachian tubes, making middle ear trouble and consequent deafness almost certain.

**1385 (d).** But this is not all; the secretion lodging on this scar does not remain there as healthy secretion; this should be borne in mind. It always becomes decomposed, very disagreeably affecting the breath. If our nostrils detect decomposition when standing at a distance of two feet from the patient, what must be the effect of this



contaminated air on his lungs and blood? Remember he is inhaling this putrid air day and night, without cessation, and year after year? Physicians will recommend such a patient (as soon as they find that the nasal douche, the application of nitrate of silver, cod liver oil, etc., will not decrease the disease that is wasting his strength) to visit the seaside, or the mountain air, etc., but what is the advantage of visiting these healthful resorts, while he carries such crust laden nostrils with him?

These secondary effects of the "galvano cautery method" of curing pruritic catarrh, should cause every physician to "make haste slowly" in adopting them.

1385 (e). Suppose a man, suffering from a violent toothache should visit a cheap "tooth-pulling" shop, and have the aching tooth extracted, without first informing himself as to the possibility of its being saved for future valuable service. Every one would at once pronounce him exceedingly foolish for thus impatiently sacrificing so important an organ. No doubt he would, in this way, be relieved of the pain in his jaw in a very much shorter time, than even an experienced dentist could have relieved him while saving his tooth, but what is to be said of the loss he has sustained? Is the loss of a tooth of so small a moment that it is not to be taken into consideration? In other words: is relief of the annoyance of an aching tooth in the quickest possible way the best under all circumstances? "Tooth-pullers" might say yes, but no dental physician would.

In this dental case, we have almost a complete parallel to the operative method for the relief of pruritic catarrh. As there are numerous cases in which it is far better to extract an aching tooth, than try to save it, so there may be cases of pruritic catarrh in which it is far better to remove the offending membrane, than to endeavor to relieve the complaint by treating the originating inflammation. yet there are many aching teeth that should not be extracted, and there are also many cases of pruritic catarrh that can be cured completely without any other treatment than the MILDEST means for removing the chronic catarrhal inflammation of the nasal cavity. The mucous membrane of the nasal cavities, like the tooth, is a valuable organ, and is essential to the welfare of the patient.

1385 (f). "Is there any other method that is certain to give relief in every case, besides that of removing the hyperæsthetic tissue?"

It is seen that the question implies that the removal of hyperæsthetic tissue is certain to give relief to every case, when it does not always do.

I know of no method that "is certain to give relief in every case."



case," but I know of a method that will give relief to, at the very least, seven-eighths of these sufferers, and that is large enough to make it quite interesting to physicians, and important to patients, especially as this method does not injure the mucous membrane in the least; on the contrary it not only preserves it, but restores it to its normal condition, if it is restorable, and it is the restoration that cures not only the pruritic rhinitis, but also the disease that occasioned it, namely, the chronic catarrhal inflammation.

**1385 (g).** Here is an important question for all operators: Will the mechanical removal of the hyperæsthetic structure arrest the inflammatory process that is the cause of the hyperæsthesia?

The answer must be that it cannot! Yet it is claimed by many that this mechanical removal alone will effect a complete cure.

If the destructive operation is merely alleviative, and not curative — as it is evident it cannot be the latter — I insist that it should not be resorted to until it has been found, upon trial, that the treatment by the spray producers will not effect a cure. If the patient is not relieved after ten or fifteen thorough treatments by these instruments, THEN ONLY may we resort to severer measures.

I have seen during 1885 and 1886, twelve persons who had crusts in their nostrils, none of whom had such formations previous to their being operated upon by the galvano-cautery. Such cases are far more difficult to relieve, not to speak of curing, than the so-called atrophic catarrh. Indeed three of these cases, previous to their calling on me, were pronounced atrophic catarrh by a physician, who is accustomed to examining catarrhal patients.

I will now report the results of the treatment of a few cases of severe pruritic rhinitis, that will go to substantiate the assertion that even those severely affected can be cured without operation.

I have selected these cases, because each had symptoms that were, according to the views of many writers on this complaint, indicative of an absolute necessity for removing the hyperæsthetic tissues. Three of the cases had submitted to this operation, but were not permanently benefited.

The treatment they received from me was the application of medicaments by spray producers, as mentioned pages 457 to 467. Hygienic measures were enforced and constitutional remedies were prescribed.

**1386** Mr. S. Rucknell, æt. 27 years, from East St. Louis, Ill., sent to me by his brother, Dr. Rucknell. In May, 1882, he had his first attack of pruritic catarrh. Was treated by his brother, the latter using my spray producers. In May 1883 he had a slight attack, which soon disappeared, but recurred about the middle of July following, and continued until frost. During the whole summer he took ten to fifteen grains of quinine every night. This he thought,



held the symptoms in check, which it had only yielded. In the spring of 1884 he commenced his daily use of quinine at bedtime, taking about five grains, and discontinued it about July 4th. At about the 20th of August his pruritic catarrh attacked him again and with much greater severity.

I gave him the first treatment on the 31st of August 1885. The effect of which was to relieve him of his most prominent symptoms even before he left the chair.

He had not breathed through his nostrils for more than five minutes at a time since August 20th until after his third treatment, which was given on Sept. 2d. Since that time his respiration through these passages has been unimpeded.

He received but eleven treatments. I wrote him a note asking an explanation for an abrupt discontinuance of his attendance. He answered by letter saying "I am well and feel better than I have done for three years; will send you a full history of my case soon. Illness in my family compelled my continued presence at home." I am credibly informed that he had a few attacks of pruritic catarrh during the latter part of August, 1886, but they were not severe enough to keep him from his daily duties; whereas during the years of 1884 and 1885, he was compelled to desert from all business, for three or four weeks at a time. Had he been treated a sufficient length of time in 1885, and fifteen or twenty applications made in 1886, he would have passed the last of this year entirely free of every symptom of pruritic rhinitis. As it is, if he receives no further treatment for his chronic nasal catarrh, the original disease, his pruritic rhinitis will soon return with all its former severity, not only this, but it will continue to increase as though he had received no relieving treatment.

1387. Mrs. ———, *et. 58* years, born in Brussels, Belgium. When she was 18 years old she had her "first attack of sneezing and running at the nose in warm weather," but they were not very severe. She was then living in Brussels. These attacks occurred every year until 1850 at which time she came to America. For two years she did not experience any of her former symptoms. She then lived in New Orleans. From 1853 to 1859 (at the latter date she came to St. Louis) her complaint slowly increased, and always recommenced in the spring or with the commencement of warm weather. In 1859 she was greatly frightened by the discharge of a large number of fire arms within a few feet of her. She thinks that this drove the complaint away for three years; at least her next attack occurred in August, 1864. Since that time her attacks have always commenced on or about the 20th of August. This year it commenced on that day, and about the same hour of the day that it usually has done, namely 10 A. M. She sneezed a most constant stream until 8 o'clock that night, and was almost constantly sneezing. This has been the effect of the sneezing since 1870. Her sneezing had the characteristics of those who have been long and severely affected, and it soon changed into more of a cough than a sneeze. As soon as the cough had been well established she began to suffer from asthma.

I was called to see her on the 4th of September, 1885. She stated that she had not been in bed, nor removed her clothing since the first attack that year, and was compelled to remain in a dark room, as her eyes were very sensitive to light.

From the moment of the first attack on the 20th of August, of 1885, she had not been able to breathe through either nostril; so close were the passages that she could not force the least air through them. During the seven days



previous to my first visit she had suffered greatly from asthma.

I found her seated on a very low chair—one she had used for years when suffering from these attacks—with her arms and elbows resting on a small stand before her. She slept with her head resting on her folded arms, which were supported by the table. It was with difficulty that she could give me even a short account of her sufferings, as she required every moment for respiration.

I used the No. 4 spray producer full of plain vaseline, then the No. 5, also full. Waited a few minutes for her to get her breath, then repeated the applications.

Before I had nearly emptied the first spray producer, she voluntarily said that she could breathe easier, although, as yet she could not breathe through her nostrils. It was apparent to every one in the room that her respiration was greatly relieved in fifteen minutes after I had completed the applications.

She did not go to bed that night, as she feared moving from her chair and around table.

Sept. 6th. Found her breathing quite labored; and her throat coated with phlegm. Treated her as before. After the first course with the spray producer Nos. 4 and 5, she was able by great exertion to blow her nose both sides being open, and after the second course I used the spray No. 2 cautiously, but this induced a severe coughing spell, which brought on asthmatic symptoms, which, however, passed away. I treated her again at about 8 P. M. At that time I gave her a laxative and diuretic and 10 grains of quinine.

Sept. 6th. Slept in her bed but had her head propped up with pillows. Continued local and constitutional treatment through the month of September.

During October and the most part of November she came to my office, every other day, for treatment. Her pruritic catarrh and asthma had disappeared and her respiration through her nostrils was free and natural.

She was treated sixteen times during July and August 1886. On the 18th of August of this year she had an attack of sneezing. She said to my son Dr. Frank M. Rumboold "I sneezed and sneezed and sneezed," but she had no inflammatory metorion, no excessive depression of the system. This lasted but a couple of days. In about a week she had but one slight attack of asthma, induced by walking to the cars, as she visited my office for treatment, and by walking to her office steps, one flight of stairs. Her attack next year will be much lighter. This case clearly demonstrated the efficiency of the spray treatment.

1387 a). Mrs. Kennell mt. 28 years visited me Sept. 7th, 1886 and gave the following history: Thinks that it was five years ago that she had her first attack. The same occurred in hay time. All her symptoms passed away in a few weeks. Did not consult a physician about her case until last year. Was at the time in Pittsburg, Pa. Her physician—whose name I had never before heard—burned both nasal passages with some kind of caustic. The applications were not very painful and were made every day for a little over a week. Then the symptoms returned. For these she had caustic applied again, more severely than before. The effect was a complete relief until the last week in October at which time she experienced a severe attack, lasting until about the end of December.

May 1885, she had her first attack that year, for which she was treated in Chicago, Ill., by a physician who applied the galvano-cautery to the nasal passages. The most prominent symptoms were relieved, but she experienced



severe pain in her jaws, and in three or four days she had a tooth extracted to relieve an abscess of the left antrum of Highmore.

Her pruritic catarrh again returned about the middle of July, and had not lessened in severity when she visited me, Sept. 7th, 1885.

The first treatment gave her great relief and on her fifteenth visit, the pruritic symptoms had completely disappeared. She received treatments every other day until the 20th day of October. In June, 1886, she was treated four times once a week; in July and up to the 15th of August, twice a week. After this latter date, she was treated daily until Sept. 10th.

On August 20th, she had 7 sneezes; 21st, 28 sneezes; 22nd, 4 sneezes; but since that time none that she called "hay-fever sneezes." She claims to know these from sneezes following ordinary colds.

She will be treated a few times during the months of July, Aug. and Sept. of next two years (1887-88).

1887 b. Henry Lamb, *et.* 31 years. Had his first attack in the spring of 1881. Each year the attacks became more severe. In 1882 his first attack was on the 4th of July. He had forgotten the dates of attack in 1883 and 1884. In 1885 the symptoms appeared about the middle of August. On the 24th of this month a physcian applied chromic acid to both inferior turbinated processes and to both sides of the nasal septum. The effect of this was to cause severe pain and at her second visit up came of pruritic catarrh. A 5 per cent solution of cocaine was applied before and after the acid was placed on the turbinated process, which of course relieved the patient for a few minutes at a time. On the 34th the chromic acid was again applied. The same result was experienced, but on the 1st of September the attacks were as severe as at any time.

He came to me on the 11th of September. His uvula was greatly enlarged, being nearly one inch long, and both tonsils were so enlarged that they and the uvula prevented the posterior wall of the pharynx from being seen. This condition of his throat prevented free respiration, and led him to find sufficient on.

The effect of the applications of the spray producers Nos. 4 and 5 was remarkable; his breathing and the continual anxiety about recovery were at once relieved. On the 21st of Sept. I removed a thin slice of each tonsil and excised about a quarter of an inch of the uvula. After these operations were completed one of the symptoms of the pruritic catarrh disappeared. The local applications were made until the middle of October.

During the months of July, August and Sept. 1886, he received two or two treatments. On Aug. 22, he had a few "sneezing spells," but nothing to cause the least alarm. I promised him that he should not have another attack of pruritic catarrh. I may be mistaken, but think not. He should be treated for two or three years more.

1886. Mr. S. J. Hines, *et.* 34 years. First attack in 1883; was operated upon in August 1884, chromic acid was applied with a New York apparatus. If he was improved by this application, he did not know it, as the pain after operation was very severe and of a different kind from that he had before performed. His pruritic catarrh continued until cold weather.

On the 21st of August, 1885, his attack was ushered in by a severe "cough spell" which occurred on getting out of bed in the morning. Sept. following he made his first visit to me. He received the usual local applications and took a laxative, dextro and benzo. On October 15 he received the first of the fall. During July, Aug. and Sept. of 1886, he received



se treatments. He did not have a single symptom of pruritic catarrh; nor will he ever again experience the symptoms, if he follows up the treatment for three to five years. The number of treatments each year will not exceed eight to twelve. In that time he will have so far recovered from his chronic catarrhal inflammation that all sequences of the disease will have disappeared.

These cases are given to prove that even severe attacks of pruritic catarrh may be relieved by means of the spray producers alone.

If, however, it is found upon trial, that the treatment for chronic catarrhal inflammation will not relieve the patient of the pruritic nasal symptoms, THAN OPERATE, BUT NOT BEFORE; no physician is justified in resorting to severe treatment before he has proved that a milder course has been ineffectual.

My method of ascertaining who will require operative procedure, is to treat by the spray producers EVERY CASE for a few days, giving from ten to fifteen treatments. From the effect of these applications, I judge whether or not the case will require severer measures. It is seen that I operate on as few patients as possible, because I fear the effects that will follow the formation of the tissue in the nasal cavities. I do not wait until the pruritic season has passed away, but operate as soon as I find that the spray producers will not prove effective.

**1389. Relief by surgical measures.** This consists in the removal of the diseased, hyperæsthetic mucous membrane that covers the turbinated processes and portions of the septum nasi. This is best done by means of Jarvis's wire snare, or some modification of this valuable instrument.

I prefer this instrument to the galvano-cautery, because it can be employed to remove even an extensive hyperplasia of the turbinated processes without leaving a large cicatrix, certainly not more than one-tenth of the size of the portion removed.

To be enabled to apply this instrument with comparative ease to the patient, the nasal speculum (figure 27) will be required. With it the passage can be dilated to some extent.

If the patient does not hold the instrument in the best position for complete inspection—and they seldom do at first—the physician must properly adjust it. Thus held, it will be far more comfortable for the patient than if the physician were to hold it, and the parts will be far as well seen.

It is this is the case why cause great discomfort, if not excessive pain by employing a self-retaining nasal speculum?

**1390. Wire snare** To apply the wire snare, the nostril should be dilated to its utmost, and the loop passed in with its transverse diameter held vertically. It will not be possible to prevent the wire from touching



both the septum and the turbinated process, which may excite sneezing. If it does the loop will have to be withdrawn, and a new attempt made.

Placing the wire loop around the growth is difficult to accomplish, and frequently requires great patience and dexterity. The loop is slowly passed into the nostril, and made to surround the growth. If this is large enough to protrude a quarter of an inch, it may be easily surrounded by the wire. As soon as it is ascertained, by slight traction, that the wire is engaged, the milled nut is slowly turned, time being given for the wire to sink into the hyperplastic and partially cedematous tissue, as it always does; and in about half a minute the nut should be again turned partly around. As soon as it is ascertained that the loop has a good hold on the growth, the patient should be directed to take hold of the instrument with his left hand. He should then turn the nut so slowly that he experiences but little pain.

**1391** An important direction, is to keep the end of the instrument, from which the loop extrudes, held close to the outer wall of the nostril. If this is not done, the loop will slip off over the anterior extremity of the hyperplastic growth. It should be borne in mind, that the loop seldom slips off over the posterior extremity of the growth.

It generally takes about half to three-quarters of an hour to remove even a small enlargement, while for one of so great dimensions as to fill the nasal passages, from one to three hours are required. The only sure guide is not to cause too much pain.

When the instrument has cut itself out, if the patient does not blow his nose—which he should not do—there will be no loss of blood, or at least very little. This insures a small scar, one about the size of a large pin's head.

Not unfrequently the hyperplasia is a rounded body only, such as the wire loop will not take hold. In this case I have taken the needle of a hypodermic syringe



and transfixed the growth and then placed the loop over

This gives the wire a hold on the tumor. Since then I have had long needles made, taking my pattern from one I saw in the hands of Dr. Jarvis, in June, 1882.

This led to the idea of having the needles so attached to the ecraseur (figure 117), that they could be used after the loop of wire was placed around the growth.

In some instances I find that this snare, as modified by me, has a little advantage over the original Jarvis snare, but in very many cases I use the Jarvis snare, with his needles in the place of this instrument.

**1392. The Galvano-cautery.** Every one has a favorite manner of applying the galvano-cautery. Some allow the platinum to become almost white-hot before passing it into the nasal cavity. I did this on several occasions, to my patients detriment, the radiating heat being great as to cause acute inflammation of the whole cavity and great swelling of the face. The electrical energy would be sufficient to make platinum white-hot in one second of time while held in the air. Of course if the current was allowed to continue, the wire would be burnt through in about three or four seconds, but when the electrode is laid on the tissue, this keeps the wire from becoming sufficiently hot to be destroyed.

**1393.** I prefer to place the electrode on the spot to be cauterized and then make the connection with my foot, never using my finger or thumb for making the connection, as this would necessitate holding the instrument so firmly in my hand that I could not be certain of the degree of pressure I was making on the part being burned.

Immediately on the withdrawal of the electrode, I spray the cavity with spray producers Nos. 2 and 3 (see page 345.) employing the vaseline comp. given on page 131. This will have a soothing effect, but if the patient complains of the distress from the burning, I apply the skate of cocaine. This is an excellent preparation, and produces a much more lasting effect than the solution. The strength that I now employ is 5 per cent.



The next day the patient should receive the regular treatment with the spray producers.

As soon as the patient can endure a second application of the caustery, it should be applied. Generally one or two applications a week can be borne without great discomfort.

**1394. Caustic Applications.** The applicator that I have most frequently used, has been a silver probe. When I desire to use chromic acid—which is very seldom—I heat the point of the probe and then touch it to a crystal of the acid, the crystal instantly melts and coats the probe point. Then the instrument is ready for use. A 5 per cent cocaine solution should be sprayed on the parts frequently for half an hour before the acid is applied. Care must be taken not to hold the acid too long on the part to be destroyed; but just to touch the part is quite sufficient. The spray of vaseline, with No 2 spray producer, should be applied immediately after the touch is made.

**1395.** The reader will be pleased with the success that Dr J A Sucky of Lexington, Ky., has had with this powerful agent. The following is his method, taken from the first edition of my monograph of Pruritic Rhinitis.

"In the use of this agent my experience coincides with that of Dr F. Donaldson, of Baltimore, Md., who says. We have found chromic acid a powerful escharotic, not causing pain or hemorrhage and, when carefully used, perfectly under control.

"Its action is that of a prompt solvent of organic matter. It oxidizes and decomposes the tissues. It loses one-half of its oxygen, and is itself converted into the inert sesquioxide. It is, at the same time, an antiseptic, and disinfectant. It appears, according to Woods and Baise, to owe its antiseptic action to its power of coagulating albumen and all proteoid compounds, in which it has been found to exceed all the acids and antiseptics that have been tried, being ten times stronger than carbolic acid, fifteen times stronger than nitric acid, and twenty times stronger than bichloride of mercury. It gives less pain than other caustics."

"It is one of the most powerful destructive agents to inferior organs, its greatly exceeding carbolic acid in this respect. The method by which we apply the chromic acid (paste made by adding just enough water to render it semisolid) is to first dry the parts with an absorbent cotton wrapped around a nasal probe. This should be done very gently so as to not excite enough to cause pain. If the drying process causes either it should be discontinued. If



Application is to be made to the posterior extremity of the turbinated bone, the instrument represented in figure 143 is used.



Figure 143. Stucky's Canule Applicator.

"This is a modification of Dr. Andrew Smith's grooved catheter for vaporization of nasal mucous membrane by means of fuming nitric acid. This instrument is smaller and much easier introduced, the canula is flat and rounded. Length of tube  $6\frac{1}{2}$  centi.; flat inside; probe, extent 2 centi.; length of handle  $5\frac{1}{2}$  centi.; circum. of tube  $1\frac{1}{2}$  centi.; length of probe  $9\frac{1}{2}$  centi. There is a slot on the top of tube as represented in the drawing. It will be observed that the probe is 3 centi. longer than the tube or canula.

"The probe is passed through the tube, and around its distal extremity a small piece of absorbent cotton is twisted, and on one side (the side on which the application is made) the chromic acid paste is applied; the probe is then withdrawn into the tube; the tube is now oiled with vaseline and gently pushed into the nasal fossa through the space between the lower turbinated bone and the septum until the point reaches the hypertrophied mass to be removed. This can be ascertained by the touch or by the posterior rhinoscopic examination. After reaching this point, the tube is steadied by grasping the canula with the thumb and forefinger and placing the little finger (of same hand) on top or cheek of patient, and with the other hand the probe is pushed through the tube; then by depressing and elevating the handle alternately, the entire mass may be thoroughly touched with the cautery. After accomplishing this, the probe is again drawn into the tube, and the instrument withdrawn. The cavity is now to be sprayed with Dobell's or some alkaline solution which relieves any pain caused by the application. By the use of this instrument we can avoid the touching of any part of the mucous membrane but the mass; the cautery being concealed our application can be limited or general.

"Where the mucous membrane is hypertrophied and pendulous, over the posterior turbinated bone, the application is made with the instrument represented in figure 144, which is similar to figure 143.



Figure 144. Stucky's Canule Applicator

In this instrument the tube is closed at its distal end and has a slot on its



"Length of tube 9½ cent.; length of handle 8 cent.; circum. of tube 14 cent.; length of slot 4½ mil.; length of probe 9 cent."

"The tube is inserted into the nasal cavity with the slot to the side of the hypertrophy, the probe, covered with its treatment and the chromic acid is then pushed quickly through the tube and the application made to the lower surface of the inferior turbinate bone. The affinity of the chromic organic matter is such that it acts immediately. There is no pain of consequence resulting, and no bleeding. After the first application, our view of the remaining portion is not obscured by blood. Two or three applications are all that is necessary to remove the largest hypertrophy of mucous membrane that I have seen. I never apply the chromic acid more than twice a week. After removal of the membrane, it can be easily removed with a small forceps or with a loop No. 5 piano wire attached to a probe. The after treatment consists in making applications on alternate days of the boric acid and saline mixtures before mentioned."

**1396. Crushing.** I have grasped the sensitive portions of the membrane with a slender, but strong pair of forceps, maintaining the hold on the membrane for two or three minutes, first spraying the parts with a 20 per cent. solution of cocaine. The results are quite satisfactory.

**1397. Locating the Diseased Membrane.** In locating the hyperæsthetic spot or spots, I employ, if possible, a small reflector, such as is illustrated in figure 28, if it can be passed into the anterior nares without producing much if any irritation, using, at the same time, a nasal speculum. I then insert a probe, bent slightly at the point, and ascertain according to the method employed by Dr. Roe, of Rochester, N. Y., the location of the most sensitive spot on the turbinated process, known by the patient experiencing a BURNING SENSATION.

**1398. Nitric Acid.** I have used nitric acid but once. The disturbance occasioned by its application was so great that I think I will not use it again.

**1399. Posterior Nares.** If the posterior portions of the turbinated processes or the septum nasi are to be inspected or operated upon, I hand the patient the tongue depressor (463) and direct him to hold his tongue down with it, using his left hand. If the space between the posterior wall of the pharynx and the soft palate is sufficiently large, I place the pharyngeal reflector, as shown in illustration 20, back in the fauces to get a reflection of the posterior extremities of the inferior and



middle turbinated processes and the septum nasi, using my left hand, leaving the right hand for the manipulation of the diagnostic probe, the electrode, the Jarvis snare, or the chromic acid probe.

If the velum hangs too close to the posterior wall of the pharynx, I hook the pendent portion with the spreading soft palate retractor (472). Before drawing the palate forward, I spread the limbs of the instrument a little, and then draw it slightly outward. I then lift the right hand of the patient to the handle of the instrument and direct him to draw it as far forward as he can without causing unpleasant sensations. The patient can hold the instrument very much better than an assistant, as he knows how to control it so that it will not cause him toretch or occasion pain.

The reflection from the pharyngeal mirror will assist the operator in locating the sensitive spots, and in adjusting the Jarvis snare.

In making all caustic applications to these parts I employ the same methods.

**1400. REMARKS ON CASES.** It may prove to be of some benefit to the reader to close this chapter with a few remarks on some peculiar cases.

Mr. —, of St. Louis, æt. about 34 years, consulted me Sept. 18-4 desiring treatment for hay-fever.

I gave him the nasal application for chronic nasal catarrh. Relief followed. It was continued for five days, at which time he had a severe attack. He desired some more sure method than the mild spray of vaseline. I applied, with great care, nitric acid by means of a small piece of pine wood, made in a spoon about the width of a match. This spout was dipped into the nitric acid and applied to the left inferior turbinated process, and instantly removed. The patient jumped out of the chair, as it moved by a powerful electric shock. The excitation was indicative of excessive pain. The effect soon passed away but he had a most severe attack of pruritic rhinitis, immediately following the application. That night he had a chill and in the morning, an erysipelatous inflammation appeared on the left nostril. This passed away in a few days.

I have not seen the gentleman since but heard that he is still suffering from pruritic catarrh, and is still under treatment by another physician.

In June 1881, while applying the Jarvis snare, the wire broke, and left the end in the nasal passage, that is, both strands broke at the same instant. After endeavoring for fully half an hour to find it, the patient went home. I searched daily for it for five days, then every other day for three weeks and subsequently at every visit for about six months without finding it; nor have seen it or observed any symptoms of its presence since. The patient has not



experienced the least inconvenience. The turbinate process, however, became reduced very much in size and has not given the least trouble, before the operation it sometimes became swollen to the extent of closing the passage. The patient is still under observation Dec. 1887.

I have very frequently been greatly mistaken as to the rapidity of recovery of some patients. I remember of a number of cases that I thought were but slightly affected, which proved to be severely affected upon reaching treatment. Others that I thought were so severely affected that but slight encouragement was given; yet they recovered rapidly and permanently, with comparatively short courses of treatment.

The following two cases illustrate these extremes:

Mr. H. F. A., of Kirkwood, Mo., 21, about 32 years, sent to me by Dr. H. H. Madd, of this city, for treatment of hay-fever pruritic rhinitis in Aug. 1877. From the history of his case I thought that his catarrh was but slight and gave quite a favorable prognosis. He was treated on the 14, 16, 18, & 20 of Aug.; again Sept. 1, 6, 12, 17, 22, 29, again Oct. 30. While he was recovering from the time he received the first treatment, the number of treatments, now known, was not sufficient to have given the marked relief that would have followed daily treatments for two weeks, and then treatments every other day until frost; for his case was severe enough to require this course.

The consequence was the patient was not sufficiently encouraged by the improvement to continue the treatments the next year as he was advised to do. He was treated as I treated those patients, and was told, as I told my patients, that his catarrh was the cause of the hay-fever, and that he could be cured of the latter until material relief of the former was afforded.

I have had a very large number of patients leave me, because I have no statements to them like the above. They considering it too exceedingly encouraging to continue treatment.

1401. The following letter in German and its translation is given as a sample of the other extreme. The author of this letter received but one treatment less than the case mentioned above. The letter speaks for itself.

St. Louis, den 8ten Dezember, 1886.

Im Sommer 1875 bekam ich wie ich glaube durch Erkältung einen Catarrh, und achtete des warmen Wetters wegen auch nicht weiter darauf, mehnend es würde sich schon wie so oft von selbst wieder verlieren.

Als aber eine Woche nach der andern verging, ohne wieder sich bessern zu werden, die einzige Aenderung bestand darin, dass der Schnupfen sich allmählich lang verlor, und dann wieder nun so heftiger aufzutreten, so dass ein befreundeter homöopathischer Arzt mich aufmerksam machte, besser etwas dagegen zu thun, da das Uebel chronisch werden konnte.

In Folge dessen ward ich mich an meinen Hausarzt, argte ihn an, dass ich argen Kopfschmerz litt, besonders des Tages bevor das Fieber überhaupt durch Appetitlosigkeit, Zerschlagenheit der Glieder den Tag des Fiebers vorausste, was sich dann auch sehr pünktlich des Morgens mit heftig schmerzenden Nosen, Laufen der Augen und Nase einstellte und meistens 24 Stunden anhielt; der Arzt erklärte es sogleich als Heidenberg'sches Uebel, verschrieb mir Pillen und Medizin, und versprach mir heilige Besserung.

Es vergingen Wochen und da mein Uebel immer schlimmer wurde so dass ich nur einen Tag noch frei vom Fieber war, und so pünktlich es sich Morgens einstellte so plötzlich verschwand es am andern Morgen.

Da der zu Rath gezogene Arzt selbst, nach mehr solchen Wechseln Medizin keine Besserung in meinem Befinden erzielte, consultirte ich



der berühmtesten Deutschen Aerzte in der Hoffnung von ihm befreit zu werden von meinem Leiden, welches sich recht verschlimmert hatte, mein Gesicht schwell argan, so dass ich kaum sehen konnte, da meine Augen und Nase immer voll Wasser waren, mein Kopf war zum Zerspringen angegriffen, und durch die Nase konnte keine Luft bekommen. "Natürlich es ist das Heu-leber," sagte der Arzt, gab mir ungeheure Portionen Quin, 30-40 gran besser Nacht, aber leider ohne allen Erfolg, so dass er sagte, er wüsste nicht was zu thun. Schon glaubte ich dem Uebel unterliegen zu müssen als ich dem Rath einer Verwandten folgte, und mich von Dr. Humbold untersuchen liess, und wenn demselben mir auch nicht die beste Hoffnung gab, mich zu heilen, jedenfalls mich einer längeren Cur unterwerfen müsste, wegen der Katarrh welcherer sagte sei die Ursache meines Heu-leber so hat sich derselbe doch zu mir ganzend bewährt, als der Winter vorüber war mein Uebel vergangen, und trotz der Befürchtung des Arztes—das Leiden könnte das folgende Jahr wiederkehren—und bin geheilt hoffentlich auf immer davon, da jetzt schon 9 Jahren dazwischen liegen, Dank heut noch dafür.

Emilie Grosser.

#### 1402. The letter translated.

St. Louis, Dec. 8, 1886.

In the summer of 1875, I contracted, through a bad cold as I believed, a slight catarrh, and on account of the warm weather, thought nothing further of it, believing it would pass off of itself, as it had often done before.

At however, week after week passed, without my becoming perceptibly better the only change being that the running of the nose, ceased sometimes for days and then came on very severely, so that a homoeopathic acquaintance told me that I had better do something for it, as the complaint would become chronic.

In consequence of which I went to our family physician. I also told him that I suffered from severe headache, especially on the day before the fever began itself. Because of loss of appetite and an aching of the bones, I know the day of the fever, which was preceded every morning very punctually by hard continual sneezing, running of the eyes and nose, that lasted regularly 24 hours.

The doctor immediately pronounced it hay-fever, prescribed pills and medicine, and promised me a rapid recovery. Weeks passed and my trouble grew worse, so that I was only one day free from fever, and as punctually it would show itself one morning, so suddenly would it disappear on another morning.

Having frequently changed the medicine, according to the advice of a physician called into consultation, without any improvement on my condition I consulted one of the most noted German doctors in the hope of being relieved from my complaint, which had become a great deal worse. My face had swollen so badly that I could hardly see, my eyes and nose were always full of water my head ached as if it would burst and I could not breathe through my nose. "Undoubtedly it is hay-fever," said the physician: gave me an extraordinary dose of quinine, 30 or 40 grains in one night but without any result; then he said he did not know what to do. I now became alarmed, and following the advice of a relative, went to Dr. Humbold. He did not give me great hopes of a cure, but said I must place myself under a long treatment for the catarrh, which he said was the cause of the hay-fever. This was shown by it to be so good, that when the winter was over, my trouble passed away; and contrary to the doctor's fear that my trouble might return the following



year. —I have, I hope been permanently cured, as it is now 10 years since my treatment. I thank him for it yet, to-day.

Emilie Grosser.

## CHAPTER XVI.

### ASTHMA.

**1403.** This is a spasmodic ailment. It is altogether likely that the spasms—which constitute the disease—occur in the diaphragm\*, in the nonstriated muscles surrounding the bronchi† and in the inter costal muscles. The spasms are due to disturbances in the sympathetic nervous system, occasioned, primarily by inflammatory irritation of the nasal passages.

How can this be proved?

*First*, by the fact that when the rhinal inflammation, WHICH IS ALWAYS PRESENT, is even slightly ameliorated, the asthmatic spasms are also ameliorated.

*Second*, by the intimate nervous relationship between these organs; and

*Third*, by experiments that show that nerves control dilation and contraction of the nonstriated muscles of the bronchi.

**1404.** The complaint is never idiopathic, it is always symptomatic; consequently heredity has nothing to do with originating it, but may have much to do with the predisposition to it.

This disease is known to have metastastic characteristics. For instance, it will alternate with epilepsy, with some skin affections; with megrim; with angina pectoris.

\* Wintrich.

† Salter.



g; with hemicrania, etc., and will succeed herpetic eruptions of the skin.

**1405. An attack may be brought on** by dust or pollen of plants and trees; by fright; by sad intelligence; by indigestion; by flatulency; by disagreeable odors; by sulphurous fumes; by sexual intercourse; by rapid walking or ascending a flight of stairs; by pressure on the pneumogastric nerve; by exposure to the air of a cold damp room; by the effects of wet clothes; by sleeping on feathers; by getting the feet wet; by seeing another person suffering from an attack, etc., but not one of these irritating agencies, or any number of them combined could induce an attack of asthma, unless the superior portion of the respiratory tract has been for a longer or shorter period of time in a diseased condition.

I have had 52 men and boys, and 42 women and girls who had asthmatic symptoms, up to Jan. 1888.

**The Effects of Nasal Polypi.** In November 1869 I had a patient, the study of whose case led me to believe that nasal polypi, in conjunction with a diseased condition of the nerves connecting the nasal mucous membrane and the lungs, sometimes occasion attacks of asthma.

In the fall of 1862, while in charge of a large ward in the U. S. General Hospital at Jefferson Barracks, Mo., I had four asthmatic patients, whom I was treating for nasal catarrh. These patients had severe attacks of asthma, which had developed after they had left home. From the study of these and other cases I came to the opinion that nasal catarrh frequently originates symptoms of a more serious character than those located in the nasal passages, but until Nov. 1869 I had not felt assured that every asthmatic had been, for years previous, a victim of nasal catarrh. Since that time I have not omitted to inquire of asthmatic patients concerning their liability to frequent and prolonged attacks of cold in the head, previous to their first attack of asthma, and have learned from every one of them, that they had been taking severe



colds, especially each fall and spring for a number of years.

**1406.** Since 1878, I have thought that I could certainly prognosticate either a complete exemption or much less severe attacks in those asthmatics who have been afflicted for less than five years, and who suffer from gelatinous polypoid growths; especially if the tumors are located in the posterior portion of the nasal passages occupying the posterior half of the middle turbinated processes, or of that portion of the superior turbinated process immediately above this locality.

In Dec. 1869 I reported to the St. Louis Medical Society, a partial history of a patient that is now given in full in my work on "The Hygiene and Treatment of Catarrh," pp. 405 and 410. I stated at the time that the removal of gelatinous nasal polypi afforded him relief from the irritation arising from the chronic catarrhal condition of the mucous membrane of his nasal passages, and that asthma was due to this chronic inflammation, and not alone to the presence of the nasal tumors. The only way in which these growths affected the asthmatic symptoms, was in the increased irritation which they caused, and which gave rise to asthma.

**Asthma Without Nasal Polypi.** We have many patients afflicted with asthma who have not a polypoid growth in the head, but we do not have a case afflicted with nasal polypi, or asthma, who have not, for a long time previous, been afflicted with chronic nasal catarrh.

**1407.** Dr. W. E. Fischel, of this city, read a paper in 1879, before the St. Louis Medical Society, on the "Treatment of Asthma by the Weldenberg Apparatus," showing that the alternate employment of compressed and rarefied air had a wonderfully beneficial effect on the complaint. After making favorable comments on the paper and on the method of treatment, I stated that I had frequently relieved attacks of asthma by the removal of nasal polypi.

I will now give a few cases whose history confirm



that I have said concerning the cause of asthma and its relief.

**1408. A case of Asthma with Nasal Polypi.** In Nov. 1869, Mr. Richard Schaffer, of Alton, Ills., æt. 43 years, consulted me in regard to the occluded condition of his nasal passages. Found on examination both nasal and pharyngo-nasal cavities nearly filled with gelatinous polypoid growths.

Two years previous, he had hawked out of his throat a large piece of, what he took to be, matter. On passing the same place the following day, he chanced to notice the matter, discharged from his throat, still adhering to a piece of board, upon which it chanced to fall. It was redder than when he spat it out of his mouth, which induced him to examine it. He found it to be of a fleshy consistency, demonstrating almost beyond doubt that it was a polypus. The preceding March he had an attack of asthma, which had increased in frequency as at first he had attacks only on damp days, say once in from three to ten days. During the last two months he had not missed a week in which he had not had one, sometimes two and three attacks. He made his first visit late in the evening, and as he had not had an attack for three days, he feared one before he could reach home that night.

I took out, from each nostril, one large polypus. I advised him not to return to Alton that night, but to remain in this city and visit me the next day if in ordinary health. He missed the asthmatic attack that night, and called upon me the following day when I removed five more polypoid growths, four varying in size from a pea to that of a hazel nut, and one as large as an inch and a half of the end of one's thumb, all of them pedunculated, consequently not difficult to remove. At the completion of the operation he went home; but returned in a week saying, he had escaped asthmatic attacks, but had one or two more polypi in his nose which he wished removed. I removed three or four more small tumors after which I drew a wire loop through each nostril to make sure of having secured all of the growths.

My method of drawing the wire loop through the nostrils of this patient was almost the same as that given in topic 659.

After passing the wire in this manner through the right nostril, I caught hold of a large tumor, one that could not be felt with the finger, nor seen with the pharyngeal mirror. Its removal was accompanied with a good deal of pain and a large flow of blood.

The patient remained in the city over night, and visited me the next day, but the parts were so much swollen that I could not say



whether or not all of the growths had been removed. He went home that day.

**1408 (a).** I did not hear from him again until the following March (1870). Two days before this visit, he had the first attack of asthma since the removal of the tumors the previous November. He thought that tumors were the cause of all his asthmatic attacks and visited me at this time for the removal of supposed polypoid growths.

**1408 (b).** At this time I was injecting these growths with tincture chloride of iron, which had in it a small quantity of the muriate of morphia. I injected five small tumors without occasioning nearly so much pain, as by dragging them out.

He remained for treatment about three weeks, during which time I treated him for chronic nasal catarrh. I had urged, the fall before, that this inflammation should be reduced to a minimum, but as I could not state to him positively that it would relieve his asthma, he concluded to wait until a more favorable opportunity occurred.

The effect of the injections on the growths was good but my treatment was too irritating as I learned from him years afterward, he refrained from telling me so at the time. There were several stumps of tumors left, which he wished me to squeeze so that they would slough off. This I did most thoroughly. He went home that evening.

I learned from him by letter that he had a serious time for five days after his arrival at home. His face swelled and took on an erysipelatous appearance, but he had escaped asthma.

Feb., 1871, he came to me again to have the other polypoid growths removed. He had been free from asthma but as his nose became more and more filled he felt if these tumors were not removed he would soon be a victim to his old complaint.

**1408 (c).** At this visit I decided it best to clip off the most turbinate process as much as possible. This was done, nearly a pint of blood flowed after the operation. The next day I took out two or thirteen growths, varying in size from a large pea to a large hazel nut. The following night he had a slight attack of asthma.

I again urged on him the possible benefit of the treatment of his nasal catarrh, but his straightened circumstances would not allow him to stay in the city.

After he returned to his home, I learned by letter, that he was free from asthmatic attacks for a few weeks only.

The following Oct. (1871), he concluded to try the effect of the treatment of his catarrh, and stayed for some time in St. Luke's Hospital of this city. At this visit I made frequent attempts to remove the polypoid growths, as they had again returned. I treated his cavities with eucalypti and the pines comp., using about two and a



If grains of carbolic acid to the ounce, which I now think was too strong. He suggested that I leave the carbolic acid out of the mixture; this I did but the mildest treatment that I could institute produced no beneficial effect on the asthma. After remaining a few weeks I went home.

He visited me each fall and spring until Sept., 1875, at which time he went to Colorado. While there he kept, for my information, record of his case every day from the 7th of Sept., 1875, to the 28th of Sept., 1876. This record I have in my possession; but it forms a poor recommendation for Colorado for asthmatics, though he mentions the place, where, after having been in the state one year, he thinks he was a little better.

The following are a few extracts from his daily report of his condition and the state of the weather:

1408 (d). "Sept. 7. Started for Denver, Col. Weather hot and showery; had asthma very bad in the night at Kansas City.

"Sept. 8. Left Kansas City; weather hot; asthma not so bad.

"Sept. 9. Arrived in Denver at 7 o'clock P. M. Asthma very bad that night, weather damp.

"Sept. 10. Light rain; slight attack of asthma at night. Heavy rain and fog Saturday morning.

"Sept. 11. Asthma in the morning; sick all day. Light rain.

"Sept. 12. Light attack of asthma at night. Weather cloudy.

"Sept. 13. Rain in the fore part of the night. Asthma very bad.

"Sept. 14. Light rain in the evening. Asthma not very bad.

"Sept. 15. Rain in the evening. Asthma very bad, the worst attack since leaving home, had a cold as soon as the asthma left.

"Sept. 16. Rain in the evening. Asthma from 6 o'clock until morning.

"Sept. 17. Weather clear and bright; had a hard cold in the morning and high fever until night; light attack of asthma at midnight.

"Sept. 18. Weather bright night cloudy. Light attack of asthma in the night.

"Sept. 19. Sunday. Light rain; asthma in the morning, hard attack of asthma in the evening for three hours; had a good night's rest.

"Sept. 20. Heavy rain. Asthma light in the morning. About one and a half hours of snow in the afternoon. Very cold bleak night; had a light attack of asthma after midnight.

"Sept. 21. Cold and raw weather; had asthma at night.

"Sept. 22. Clear and bright; took a Turkish bath in the afternoon; asthma very light at night.

"Sept. 23. Weather clear and bright; heavy dew. Asthma bad for two and half hours in the night.

"Sept. 24. Cloudy and threatening; rain all day. Asthma from 1 o'clock in the morning until half past 4 o'clock in the morning.

"Sept. 25. Clear and bright. Breathed hard about one hour in the middle of the night; no asthma.

"Sept. 26. Clear and bright. Asthma from 10 to 1 o'clock last night. Think it was from indigestion.

"Sept. 27. Clear and bright. Asthma very light.

"Sept. 28. Clear and bright. Asthma very light.



"Sept. 29. The air is misty and heavy toward the mountains. Breathing hard through the day; had asthma three and a half hours at night.

"Sept. 30. Misty in the mountains. Asthma at night for three hours.

"Oct. 1. 1875. Weather clear and bright; coughed at night no asthma.

"Oct. 2. Weather clear and bright; light attack of asthma.

"Oct. 3. A little moist in the mountains; coughed a little at night; no asthma.

Oct. 4. Weather clear and bright; clouded up at night; light rain. Had asthma bad from 10 o'clock at night until half past 2 o'clock in the morning.

"Oct. 5. Weather bright. A little asthma in the morning; coughed a little in the night.

"Oct. 6. 1875. Cloudy morning; rain. Asthma bad from 12 o'clock at night until 4 o'clock in the morning.

A more melancholy history I never read in my life. As I turned over the pages of his record I accidentally came on the one made on June 28, 1876, it is as follows.

"Cloudy, raining off and on all day; coughed a good deal; asthma very bad from half past 1 o'clock P. M. until 7 P. M. I do not know what I would have done, if one of the boarders of the hotel had not come to see how I was getting along; it was raining and I could not help myself. He stayed with me until I got a little better. I had asthma again during the night.

The following quotation speaks for itself.

"Sept. 7. Cloudy; very dark in the morning; threatening to snow. Clear ed off about noon without any storm. Breathed very short all forenoon, and coughed very much all day and most of the night; so much so that I could not get any rest.

"It is one year this morning since I left home. I am some better but not little, not half what I expected to be. I have made up my mind to leave Colorado this fall."

I will close this history by giving his record of the last five days of his stay in Colorado.

"Sept. 24. 1876. Weather clear and warm; the day has been very hot; coughed hard in the evening and most all of the night; rested but little, breath very short.

"Sept. 25. Weather clear in the fore part of the day; cloudy in the evening, very dusty. Breath short and coughed much in the evening; asthma bad from half past 10 o'clock at night until with one hour of daylight.

"Sept. 26. Clear and warm weather in the middle of the day; cloudy in the afternoon. Coughed about 2 hours in the evening, went to bed about 1 o'clock and slept until after 3 o'clock, the longest sleep I have had for several months. After this I had short breath and cough until daylight. The air is full of dust, which irritates my throat and makes it very sore.

"Sept. 27. Weather clear in the morning; cloudy in the afternoon; very dusty. Coughed very hard about two hours before going to bed, then had asthma as usual.

"Sept. 28. Weather clear in the morning; cloudy in the afternoon. Coughed hard from 6 o'clock to 7 o'clock in the afternoon, then had asthma for an hour; again from 12 o'clock to 2 o'clock, and again at daylight.

On the morning of the 29th of Sept. he started for his home in Alton, Ill.



**1408 (c).** On Nov. 29th, 1876, he visited me again, to again have the polypoid growths removed; the throat, nostrils and pharyngo-nasal cavity were well filled with them. Their removal gave him a week's respite from asthma. At the end of this time Dec. 4th, he came to suggest a more heroic operation than I ever heard from a patient in my life: it was to cut open both alae of his nose and remove every one of the six turbinated processes. Of course I did not do it, but I have been sorry since, that I did not follow his leading and remove every place of attachment of the growths, even to risking the patient's life. Had I another case like it I would recommend and urge

In the spring of 1877, Mr. S. was induced to try the virtues of *late of Amyl*. He inhaled a few drops; it checked the asthma nor did he have another attack, but in its stead suffered with what appeared to be the formation of an abscess in one of his lungs, which one I did not learn, but in three days this abscess burst and its contents, on being evacuated quick enough, strangled him, so that before he could be turned upon his side to allow it to flow out of his mouth he was dead.

**1409.** It was this patient who first suggested that the attacks of asthma were the result of irritating sensations starting in the nose, and behind the soft palate. I was sure that this is right, and if this irritation is not relieved, the asthma will continue to increase; but if it is relieved, the urgent symptoms at once begin to be relieved also.

It is not at all uncommon for catarrhal patients to complain of the characteristic shortness of breath, that is always the precursor of an attack of asthma, which indeed is asthma in its first stage. This symptom I have seldom failed to relieve, since 1873 by a thorough, yet mild course of treatment of the pharyngo-nasal and nasal cavities. Before I learned that mildness of application was essential to success, my remedies very frequently increased instead of decreased the trouble.

**1410. Another Case with Polypi.** The next case of somewhat similar symptoms was that of a lawyer aged 28 years. He consulted me in Aug., 1871 for an occlusion of his nasal passages, from which he had been suffering for about two months. "He had symptoms of 'hay asthma' or 'autumnal fever.'" On examination, I found large gelatinous polypi in each nostril. They were at once removed



and he was treated for chronic nasal catarrh, from which he had suffered for seven years. His autumnal catarrh at once ceased, nor has he had any since that time.

My treatment of the nasal catarrh consisted in the application of cosmoline to which was added a weak solution of carbolic acid and *pinus canadensis* together with constitutional remedies. This patient was addicted to the use of tobacco, I insisted upon its discontinuance.

**1411. A Physician not Conscious of the Presence of Nasal Polypi.** Dr. —, aged 39 years had been a victim of asthma for four years. He had just returned (Oct. 1872) from a prolonged visit to Colorado, where he had sought relief from his complaint. He was not aware that he had gelatinous polypi in each nasal cavity until I informed him. The tumors were extracted by a pair of forceps; and his throat treated for three weeks by means of the spray producers. The same remedies were used as in the previous case. His asthma disappeared for about five months. On making the most careful examination, no polypi could be discovered. He was again treated by the spray, with no beneficial result, although it was continued for several months.

**1412. Asthma Without Nasal Polypi.** A little girl not over 12 years of age was brought to me on the 28th of November, 1874. The day before her visit to me her mother noticed her shortness of breath, which so closely resembled her brother's symptoms, who was subjected to asthma, that she feared she too would have this disease.

Careful examination, showed only slight redness of the mucous membrane; no enlargement of tonsils, no excess of secretion, and nothing that would indicate catarrhal trouble of a severer type than is seen in most children of her age. As the symptoms were not then annoying I decided to do nothing at the time, but asked that she should be brought back on the first indication of the shortness of the breath.

I did not see the patient until the 27th of December following. She had an attack of the shortness of breath immediately after eating a hearty supper. In the evening at 8 o'clock she had another of a more severe nature. On examination I found her left nostril entirely closed, while the right one was nearly so, the result of the swelling of the mucous membrane of the nasal passages. It was impossible to obtain a view of the pharyngo-nasal cavity, as the mirror choked her as soon as it was passed into the fauces. I tried to spray the posterior and anterior nares, but it had but slight effect on the stoppage of the passages. Throwing a spray of vaseline into the pharyngo-nasal passages produced a degree of relief to the throat and ears. Her statement that the spray relieved her ears was the first intimation



at they were affected. By means of a syringe I forced about two minims of vaseline into each nostril. This had a cooling effect.

Dec. 28th, she had a slight attack of shortness of breathing last night. Today she breathes through her right nostril more freely, but none at all through the left. After spraying the vaseline and pinus nap., as stated in topic 850, I concluded to try the effect of a postermic injection of a two per cent solution of carbolic acid into the mucous membrane of the inferior turbinated process. I throw in about five minims. The sharp pain soon subsided, and was replaced by a numb feeling in the passage and on the outside of the nose.

Dec. 29th, had no attack of short breathing; nasal passages both quite free. The patient was treated locally and constitutionally for about three months; then for a few times in the fall of 1877 and 1878. Since this time she has remained in good health and has grown to be a large, healthy young lady.

I could relate a large number of other equally interesting cases, which would plainly show the close relation between nasal disease and affections of other parts of the respiratory apparatus.

Of course no one will say that every asthmatic has nasal polypi; but I know that every one that I have seen has nasal irritation, which if relieved, will at once relieve their attacks of asthma. **This relief will be experienced by patients of all ages.**

**1413. The Symptoms of Asthma.** These are markedly characteristic. The *first* attack is without any prodromitory signs, and is sudden, taking the patient and his friends by surprise. The characteristic feature—shortness of breath—at once proclaims the disease, at subsequent attacks the patient is conscious of precursory symptoms. "These prodromes are unusually acute coryza, some bronchial irritation, headache, and general *malaise*" (Bartholow). Every adult patient that I have had since 1868, has known that their attacks were preceded by catarrhal affections of the head. Very frequently they have observed that even if they had taken a severe cold, their stomach was in good order, they missed an expected attack of asthma; but if they were under the influence of a cold—not necessarily a severe one—and if their



bowels or kidneys, or stomach were much out of order, they were almost certain to have an attack of asthma, and the greater the derangement of their system the more severe the attack of asthma.

The attacks frequently occur at night. The patient may go to bed, "feeling a little under the weather" from a bad cold, but not so bad as he has experienced many times before. After he has had an uneasy sleep for an hour or two, he is suddenly disturbed by an intense sense of suffocation. He feels as though his chest were compressed, and throws the bed clothes off, and then his night shirt in the endeavor to relieve the overpowering weight that he thinks will surely kill him. He sits up in bed, or may be jumps out of bed, runs to the door or window for fresh, cool air. His eyeballs protrude, the muscles of his neck stand out prominently, as they are used in getting breath. The difficulty in breathing continues, until his face is first purple and then pallid. His inspirations are frequently prolonged, though often shorter than usual; his expirations are nearly always prolonged in a peculiar way, they end with a suddenly increased effort, and the inspiration is as suddenly commenced. All this time the patient's face, neck and the upper part of his chest are bathed in perspiration. The number of respirations are from twenty to thirty-three per minute, usually about twenty-seven to twenty-nine. The pulse is always more or less increased in number and is thready and feeble.

1414. After suffering in fearful agony for from one, to six, or twenty-eight hours, the victim begins to expectorate a whitish frothy mucus; then he has a cough, which brings up muco-purulent secretion. This relieves him and he now begins to get a deeper and longer breath. About this time, the patient feels an irresistible desire to urinate, and frequently does so at once, so as to completely wet his clothes. The longer the attack, the greater the exhaustion and soreness of all the muscles that were so unduly exercised.

1415. **Physical Signs.** The chest is greatly in-



and in size, in every direction, and the abdomen proportion in proportion to this increase. On percussion the sounds are greatly increased over both lungs, and have a tympanic quality. The vesicular murmur is much weaker than normal, sometimes it is not heard because of the whistling and wheezing sounds. By measurement, the chest expands fully one and a half inches—in a normal man,—did not expand quite one-half inch in a man—years old—whose normal expansion is two and a half inches. Expansion, while in a paroxysm, is only a little more than one-half inch.

**116. The nerves that control the contraction of the bronchial tubes.** The nerves of the lung are derived from the anterior and posterior pulmonary plexuses, and consist of branches from the vagus and sympathetic. They follow the distribution of the bronchi, the nerve trunks being usually found in a transverse section of a bronchial tube. These nerves are in close relation with the branches of the bronchial arteries. Brown and Roy found that *section of one* causes a marked expansion of the bronchi of the *opposing* lung, while stimulation, by electricity, of the *peripheral* end of a divided vagus causes a powerful *dilation* of the bronchi of *both* lungs. The same kind of stimulation of the central end of one vagus, the other intact, also causes a contraction (feeble) under the same circumstances (Landois and Stirling).

**117.** That which causes dilation of the arteries of the *inner* and mucous membrane, causes dilation of the *arteries* in the lungs. If we will compare the above experiments of Brown and Roy with those of Brown and Roy, seen in topic 294, the cause of the asthmatic attack will be understood.

**118. Treatment of Asthma.** The same general plan is to be pursued in the treatment of these patients as in common catarrhal patients of the same age, with the exception that but little of the *pinus canadensis*



comp. is employed, not more than one or two drops, and but a half drachm is to be inhaled at a visit. It is very common thing for a patient to express a feeling of relief after the application of the spray producers Nos. 4 and 5. The wheezing sounds in the lungs become very much lessened if they do not cease completely.

**1419.** The daily treatment should be given for nearly three weeks, then the every-other-day treatment for about the same length of time, then applications should be made twice or may be only once a week, until all nasal secretion is so much lessened that the patient is not under the necessity of using a handkerchief more than once a day. The galvanic current should be applied at each visit, after the first two weeks of the treatment have passed. Constitutional treatment is required for all cases, even for those who are but six years of age.

**1419 (a).** As a rule the bowels of these patients are habitually constipated, their renal secretions are scanty and their appetite poor and capricious. These symptoms indicate the need of the larix compound, given in topic **863**. If their feet are habitually cold, these should be so treated, by the foot-bath, application of vaseline, electricity, etc., so as to relieve them of this depressing condition as soon as possible. A careful examination of the nasal passages should be made, and if a nasal polypus is seen, it should be removed as soon as the general inflammation of the parts is slightly reduced. If the mucous membrane is even slightly hyperplastic, this growth should be removed as soon as possible. Quinine in five, ten or fifteen grain doses should be prescribed, to be taken as the patient is about to go to bed for the night. Every effort should be made to lessen the severity of each attack.



## CHAPTER XVII.

### DISEASES OF THE NERVOUS SYSTEM, THAT ARE SECONDARY TO DISEASES OF THE NOSE, THROAT AND EARS.

**1420.** Nasal secretion is not alone the only symptom of rhinal disease. I give this chapter solely for the purpose of proving that an excess of nasal secretion is not alone the only evidence of rhinal disease, and that there are many mental and nervous ailments that are alone the sequence of rhinal inflammation. I am aiming at widening the field of Rhinology. The general profession have relegated the rhinologist's practice to taking care of a comparatively few (not a very few either) cases of "running noses." I propose to show that a very large percentage of catarrhal patients are afflicted with nervous or mental troubles, and that these latter complaints have their origin in rhinal disease. The proof that this is correct, is, that upon treatment of the catarrhal inflammation, the nervous or mental ailments disappeared *long* before the patients recover from the catarrhal inflammation.

**1421.** Another point I wish to make is, that there may be many persons afflicted with nervous and mental ailments, whose amelioration has baffled medical skill, that may be due to an unrecognized rhinal disease. This is all the more likely as this disease, in its chronic form, is almost always perfectly painless in its course and universally overlooked, and not even thought of by the general practitioner.

Before giving the histories of a few of the complaints that are secondary to rhinal disease, I will give an outline of the anatomical connections between the integument



nections. It is through these connections that we are enabled to explain why an inflammation of the superior portion of the nasal passages should produce mental symptoms, while diseases of the inferior portions do not.

**1423. Arterial supply.** If we examine the anatomy of the nasal passages we will find that the arteries supplying the superior portion of these cavities are derived from the anterior and posterior ethmoidal arteries, branches of the ophthalmic artery. These arteries supply the roof of the nose, the superior and middle turbinated processes, the sphenoidal and anterior and posterior ethmoidal cells and the frontal sinuses. All of these cavities are in juxtaposition to the brain. The ophthalmic artery is a branch of the internal carotid, and it is the first branch of that artery that comes from within the cranium.

**1423 (a). Location of arterial supply.** It is seen from the upper portion of the nasal passages, and the cells connected with them, that lie just under the brain, receive their arterial supply from within the brain cavity. On the other hand the arterial supply to the lower portion of the nasal passages, such as the lower portion of the septum, the lower nasal spaces or meatuses and the inferior turbinated processes, as well as that of thetrum of Highmore, is supplied by branches from the inferior maxillary. It is seen that we are likely to have a local disease from the lower nasal passages to the parts which are supplied by the lower portion of the carotid artery, namely the neck. It is in this way that we can account for so called stiff neck, when this portion of the nasal passages are affected. Another abnormal condition observed to follow inflammation of these parts of the nasal passages, is a paralysis agitans of the neck, causing rotatory motion of the head. Goiter is another sequence.

**1423 (b). To impress these important facts still more strongly upon the mind, I will state that a thrust of a bougie into the superior turbinated processes (the location of the commencement of every rhinal inflammation) will draw blood from within the brain from the dura**



and the mucous membrane, and between the mucous membrane and the brain. Although this has been given in different parts of this work, yet, as it is a very important subject, it will bear repetition.

**1422. Mental and nervous symptoms.** It is a fact, capable of proof by clinical observation, that there are a greater number of mental and nervous symptoms following chronic rhinal inflammation than that of any other disease. Upon close investigation, it will be observed that mental symptoms of a marked character do not follow from disease of *every* portion of the nasal passages. A patient may be seriously affected with inflammation or ulceration of the inferior turbinated processes; the floor of the nasal passages may be entirely destroyed by ulceration and necrosis, and the autrum of Highmore also may be so invaded with disease as to destroy all hold for the upper molar teeth, without the patient's mind being affected. Even a bad cold in the head will interfere far more seriously with the patient's mental capacity, than will destructive diseases in the localities named, this is because colds affect the superior nasal mucous membrane. But just as soon as the middle turbinated processes, but more especially the superior turbinated processes, and the ethmoidal and sphenoidal cells are affected; even by a comparatively slight inflammation, the patient is more or less mentally disturbed. A severe inflammation or ulceration of the throat will not have this effect; nor will an abscess in both tonsils. The throat complaint may affect the respiration, and the tonsillitis, the action of the heart.

**1422 (2).** It is to be expected that the disease of the nasal cavities, especially of their upper portions should have such an effect upon the brain, as these cavities are located immediately under its anterior portion, the portion that performs the mental functions; a thin plate of bone separating the two. Besides the close proximity of these passages and the cells connected with them to the brain, there are other influences which never fail to transmit diseased action, namely: the vascular and nervous



connections. It is through these connections that we are enabled to explain why an inflammation of the superior portion of the nasal passages should produce mental symptoms, while diseases of the inferior portions do not.

**1423. Arterial supply.** If we examine the anatomy of the nasal passages we will find that the arteries supplying the superior portion of these cavities are derived from the anterior and posterior ethmoidal arteries, branches of the ophthalmic artery. These arteries supply the roof of the nose, the superior and middle turbinated processes, the sphenoidal and anterior and posterior ethmoidal cells and the frontal sinuses. All of these cavities are in juxtaposition to the brain. The ophthalmic artery is a branch of the internal carotid, and it is the first branch of that artery that comes from within the cranium.

**1423 (a). Location of arterial supply.** It is seen that the upper portion of the nasal passages, and the cells connected with them, that lie just under the brain, receive their arterial supply from within the brain cavity. On the other hand the arterial supply to the lower portion of the nasal passages, such as the lower portion of the septum, the lower nasal spaces or meatuses and the two inferior turbinated processes, as well as that of the atrium of Highmore, is supplied by branches from the inferior maxillary. It is seen that we are likely to have reflex disease from the lower nasal passages to the parts which are supplied by the lower portion of the carotid artery, namely the neck. It is in this way that we can account for so called stiff neck, when this portion of the nasal passages are affected. Another abnormal condition observed to follow inflammation of these parts of the nasal passages, is a paralysis agitans of the neck, causing rotatory motion of the head. Gout is another sequence.

**1423 (b). To impress these important facts still more strongly upon the mind,** I will state that a thrust of a lancet into the superior turbinated processes (the location of the commencement of every rhinal inflammation) will draw blood from within the brain cavity, from the dura



mater and from the anterior portion of the brain itself while a thrust into the inferior turbinated processes will draw blood from the external carotid artery and from that part of the neck supplied by it.

**1424. The arteries of the pharyngo-nasal cavity.** are the ascending pharyngeal; the pterygo-palatine, a branch of the internal maxillary; the inferior or ascending palatine, a branch of the facial; the posterior or descending palatine, a branch of the internal maxillary and the spheno-palatine. The ascending pharyngeal artery gives off three sets of branches: the 1st., the external branches, are those which supply the superior cervical ganglion of the sympathetic and the pneumogastric and hypoglossal nerves (all these nerves send branches to this artery); the 2nd., an internal set, that passes to the mucous membrane of the pharyngo-nasal cavity and the pharynx. branches also go to the Eustachian tubes, the tonsils and the soft palate, and the 3rd. set passes vertically upward until they enter the cavity of the cranium, these branches are also distributed to the dura mater.

**1425. Arterial supply to the anterior portion of the brain.** Immediately after the ophthalmic artery leaves the internal carotid, this latter vessel pierces the dura mater and is surrounded by a sheath of the arachnoid membrane, it then gives off the anterior cerebral, the middle cerebral, the anterior choroid and the posterior communicating arteries. The anterior cerebral artery passes forward and inward to reach the longitudinal fissure between the hemispheres, curves around the front part of the corpus callosum, then runs backward over its upper surface and terminates in branches which anastomose with the posterior cerebral arteries. The middle cerebral artery is the largest of the branches; it runs outward deeply within the fissure of Sylvius, divides into many branches and is distributed to the anterior and middle lobes of the brain. The anterior choroid artery runs backward and enters the fissure at the bottom of the middle horn of the lateral ventricle, to terminate in the choroid plexus of that cavity.



ty; it supplies also the hippocampus major and the corpus fimbriatum.

This completes all that need be said upon the intimate vascular connection between the mucous membrane of the nasal and pharyngo-nasal cavities and the brain. I will now show that the nervous connections between these two localities are equally as numerous and as intimate.

**1426.** The nervous connections between the nasal passages and the brain. The principal sensory nerve of the mucous membrane of the nasal cavities and the cells and sinuses connected with them, is the great fifth nerve. Besides supplying the whole of the nasal fossæ, it sends branches to the dura mater. In this way we can account for pain and inflammation within the brain cavity, occasioned by outside irritation. The nerves of the pharyngo-nasal cavity are the pharyngeal plexus, formed by the junction of branches from the pneumogastric, glosso-pharyngeal, superior laryngeal and sympathetic nerves; the glosso-pharyngeal, which is a nerve of sensation for the mucous membrane and of motion to the pharyngeal muscles as well as a special nerve of taste; the pterygo-palatine, distributed to the mucous membrane behind the Eustachian tubes; the spinal accessory, and the pharyngeal branch of the pneumogastric. These nerves and the sympathetic are in the freest intercommunication.

**1427.** This brings us to the consideration of the sympathetic system of nerves that connect the brain and the mucous membrane of the passages under consideration. There are usually three cervical sympathetic ganglia. The branches of these ganglia are distributed to the blood-vessels, especially the arteries, to the mucous membrane of the nose, throat and ears. The superior cervical sends branches to the arteries of the brain, and to those going to the upper portion of the nasal passages and the ears. The middle cervical sends branches to the larynx and the thyroid body and to the heart. The inferior cervical, sends branches to the heart, trachea, etc.



**1428. Paresis of the Sympathetic.** It will be necessary now to show that the dilation of the blood-vessels, as is seen in inflammation, is due to a parietic condition of the sympathetic nerve surrounding the blood-vessels, and especially the arteries.

"It appears that the ganglia of the sympathetic system act, in some measure, as nervous centers for this purpose. This is indicated by the fact that the vascular paralysis of the head and face, following division of the sympathetic nerve in the neck, is more pronounced if the superior cervical ganglion be extirpated; and, as a general rule, removal or destruction of the sympathetic ganglia produces more effect than simple section of the nerve trunk. According to Vulpian, after removal of the entire brain and upper half of the spinal cord, including the origin of the brachial nerves, in the frog, extirpation of the cervical ganglion of the sympathetic is followed by vascular congestion of the corresponding half of the tongue and buccal cavity. **The sympathetic ganglia have, therefore, a certain influence as sources of nervous powers for vascular parts.**" (Dalton, p. 509).

Vulpian, of Paris, in 1875, galvanized the upper extremity of a divided sciatic nerve of a dog, and observed that the under surface of the tongue grew pale, and its superficial veins diminished very in size, or even became imperceptible. This action, which is first conveyed by the sciatic nerve to the spinal cord, is finally transmitted to the tongue through the fibers of the sympathetic (Dalton, p. 509). How is this proved? In this way! He divided the sympathetic in the cervical region (the inferior cervical) and the contracting effect on the blood-vessels was not visible.

**1429.** "According to numerous observers, a transverse section of the cord in the cervical region causes marked vascular relaxation throughout the body, as if all the vasomotor fibers had been divided in descending from above" (Dalton, p. 509.). Therefore, when there is marked congestion of a part of the body it means that there is a paresis of the sympathetic of that part.

(a) "When filaments of the sympathetic are divided, the vessels going to the part are dilated, and the supply of blood is increased to such an extent, that a certain portion passes through without parting with its oxygen (a fact which has also been demonstrated by anaesthetics) and consequently it retains its red color" (Flint, p. 6.).

That is, the vessel is so much dilated that the flow of blood is allowed to pass so rapidly that its nutritive substances of the blood do not have time to re-



sh the normal waste. Consequently whether the part muscular tissue or brain tissue, it is not normally fed and cannot perform its normal functions. *This is a very important fact*, and it explains the cause of many of the physical and mental phenomena that are otherwise entirely unexplainable. This seems to state the mechanism of the action of a severe cold on thinking faculties. The cold renders one unfit to carry out the mental functions with the usual ease because the blood-vessels are so greatly dilated that the brain substance is not normally nourished.

430. *These quotations prove, first*, that the caliber of the blood-vessels are under the control of the sympathetic nerves; *second*, that the enlarging of the blood-vessels is due to a paralysis or paresis of these nerves; *third*, that when the vessels are very greatly dilated, the parts that should be nourished are not strengthened by the passage of the blood, on the contrary they undergo starvation; *fourth*, that the galvanization of the sympathetic nerves reduces the size of the caliber of the blood-vessels.

430. (a). It is seen that the vascular supply to the upper portion of the nasal passages and the cavities connected with them, and that to the anterior portion of the brain comes from one and the same vessel (1423. (a). and

The importance of this fact is seen in the following sections:

430. (b). "The intellectual faculties are effected by inflammation of the meninges, involving the surface of the brain, the action of which affects the intellectual and other faculties. \* \* \* The *pre frontal* or the convolutions in front of the ascending frontal supplied by the *anterior cerebral artery*, are sometimes regarded as the anatomical seat of certain mental acts. At any rate, electrical stimulation of these parts is not followed by muscular motion, and, according to Ferri, if this region be extirpated in the monkey, there is no motor disturbance in this animal; the animal exhibits emotional changes; all its special senses remain, and the power of voluntary motion is retained, but nevertheless there is a decided alteration in the character and behavior, so that it exhibits considerable psy-



chological alterations, and, according to Ferrier, "it has lost to all appearance the faculty of attention and intelligent observation." \* \* \* "Roux points out that the characteristic features of lesions in the *pre-frontal* cortical region are afforded by psychical disturbances, consisting of apathy," etc., etc. (Landois and Stirling pp. 703 and 704).

**1431.** There is but one link wanting, and this is the one to connect the surface of the body with the sympathetic nerves. We know of a great many facts that demonstrate this connection such as the application of val-  
eline on the bridge of the nose to relieve the disagreeable sensation of closure of the nostrils when suffering from a cold the pungency of mustard or horseradish in the mouth exciting perspiration over the whole face and neck. "Pre-cutaneous electrical stimulation of the cervical sympathetic in man, causes sweating of that side of the face and of the arm" (Landois). These facts sufficiently prove the intimate relation of the sensory nerves to those of the sympathetic nerves (see 303, 307, and many others).

**1431. (n).** **The Importance of the Sensory Nervous System.** It should be observed that the sympathetic nervous system is reached only through the sensory nervous system. If this latter nervous system is properly protected from injury by colds, tobacco, stimulants, etc., no one will suffer in the least from catarrhal inflammation. This fact demonstrates the importance of the enforcement of hygienic measures in the management of catarrhal patients; and it invalidates the pernicious theory that this disease is inherited (341, 342).

**1432.** The object of these numerous quotations is to place the whole subject before the mind of the reader, so that he can see that catarrhal inflammation in the nasal passages, and the consequences of the inflammation are brought about by a mechanical injury, colds, originating in the integumentary covering of the body; that this mechanical injury, done to some sensory nerve or nerves, is transmitted to the internal organs, the nasal



passages and the brain, by means of the sympathetic system of nerves.

**1433. Influence of the nerves on the blood-vessels.** It is seen that the blood-vessels, especially the arteries, going to the nasal passages, are under the influence of the sympathetic nervous system, therefore, as regards the quantity of the blood-flow to the nasal and pharyngo-nasal cavities and the sinuses connected with them, the pharynx, larynx, lungs and heart are completely under the control of this nervous system. If the nutrition of these surfaces and organs is normal, it is solely because the sympathetic nerves going to the arteries in them are normal in their action, and **their action is always** normal if the sensory nerves connected with the sympathetic nerves are not injured in some way, as by a cold, tobacco, stimulants, etc.

This indicates that the sympathetic nerves do not show abnormal action except through the influence of the sensory nerves. To repeat, catarrhal inflammation *always* comes through injury done to the sensory nerves. This antagonizes the views of hereditists.

**1434.** It is not difficult to show that inflammation of the mucous membrane is brought about by a paresis of the sympathetic nerves. Brown-Sequard (**294 a**) showed that when the sympathetic nerve is divided, the central artery of the ear dilates, and the organ becomes vascular, and that when the peripheral end is excited, by electricity the same artery contracts. he also demonstrated that the former effect was dependent upon paralysis and the latter on spasm of the muscular walls of the vessels (**294 b**). Dalton says these results are not confined to the ear but extend to all parts of the head and face on the side of the section. The skin, the conjunctiva, the mucous membrane of the mouth and nasal passages, even the meninges of the brain, and, according to Vulpian, the fundus of the eye all show an increased vascularity and more abundant circulation (**298**).

**1434 (a).** These experiments, prove conclusively



that there exists an intimate relationship between the integument and the mucous membrane and between the mucous membrane and the brain. It proves also that the congestion, and the consequent resulting phenomena of inflammation, such as proliferation, ulceration, atrophy, etc., of the mucous membrane of the air passages are alone governed by the action of the cervical sympathetic ganglia.

**1435. Paresis not alone located in the nasal passages.** Now, as the sympathetic has this influence on the arteries in the mucous membrane of the air passages of the head, and as the arteries of the upper portion of the nasal cavities, and the ethmoidal and sphenoidal cells pass from within the cranium to these parts, it is not possible for the distal extremities of these nasal arteries to be affected abnormally, and, at the same time, leave the other branches of the same artery, those that are inside of the cranium and distributed to the brain substance—as I have already mentioned—in a normal condition. I do not mean that they will be in an equally abnormal condition, as they are not exposed to the deleterious effects of cold, tobacco smoke, etc., but if the arteries of the brain were as much exposed as those of the nasal passages, they would, undoubtedly, be equally affected. It is seen that it is the location of these arteries in the nasal passages that militates against them. In the case of the cranial arteries, the sensory nerves, that cause the paresis of the sympathetic nerves, are located on the surface of the body; while in the case of the nasal arteries, the sensory nerves of the mucous membrane and also those of the surface of the body produce the paresis that is essential to its greater inflammation. It is seen that the nasal arteries are much more exposed than are the cranial arteries; the former having two sets of sensory nerves, those of the surface and those of the mucous membrane, to which the sympathetic nerves of their arteries may be injured, while the cranial arteries are liable to be injured by the surface sensory nerves only.

**1436. Reflex Influence.** So intimate is the vaso-



ar and nervous relationship between the nasal mucous membrane and the brain, that if it were possible to have idiopathic disease of the brain that would last for several months, the upper portion of the nasal passages must also soon become involved therefrom. On the other hand, clinical facts prove, that upon serious and long continued inflammation of the nasal passages, the brain does also become involved.

Having completed the anatomical outline of the vascular and nervous connection between the integument and the mucous membrane and between the mucous membrane and the brain, I will give the histories of cases whose symptoms proclaim the intimate relationship between the parts I have mentioned.

These histories are given by intelligent patients, and in their own words. To these I have added histories from other physicians, to show that others have had patients similarly affected. And among these cases I have placed the histories of cases taken from books on nervous and mental diseases. These works are from well-known authors. I do this to prove that there *are many* persons affected with nervous and mental ailments that *may be* due to an unrecognized rhinal disease. Although the histories of these quoted cases say nothing about nasal symptoms, yet I am pretty sure that if they could have been examined by a rhinologist, rhinal inflammation would have been found. The years of suffering on the part of the patient show that the mental and nervous symptoms were preceded by signs that indicated a paresis of the sympathetic nerves, due to injury of the sensory nerve by colds, etc. I have purposely omitted indicating from whose works I have taken these cases, wishing the reader to determine, for themselves, which are the ones that were under my care.

HISTORIES OF PATIENTS AFFLICTED WITH NERVOUS DIS-



EASES THAT WERE SECONDARY TO NASAL, ORAL  
AND AURAL INFLAMMATION.

**1437. Headaches.** I have made no attempt to classify these headaches. I contend that these patients had headache as a sequence of rhinal inflammation. There are, no doubt, many headaches that are not the result of nasal disease, but I also contend that there are many patients suffering from headache that is alone due to nasal disease, but this condition is not recognized by the attending physician.

What I have said regarding nasal disease being the cause of headaches, will apply with equal force to the cause of all the complaints that I give in this chapter.

An interesting and a very important fact in pathology is, that pain may be transferred beyond its seat of production. It is this communication that refers painful sensations to a part distant from which the irritation has sprung, until it finally appears as though it had its origin in that part; thus the original seat of the disease is not only overlooked, but its very existence denied altogether.

The brain and its membranes are more abundantly supplied with blood than any other organ in the body, one-fifth of the whole quantity going there. This indicates that this organ is very vascular and—as the blood vessels are accompanied by the sympathetic—that it must be very liable to injury, if these sympathetic nerves become parietic through the influence of injured sensory nerves. This irritating influence, most likely, comes by way of the great fifth nerve; this is Niemeyer's opinion. In Vol. ii, page 159, he says:

"The headache, a very frequent symptom in all the cerebral diseases, is very difficult to explain; we do not know if it is of general origin, or whether, as I think more probable, it depends on irritation of the filaments of the trigeminus going to the dura mater."

(a) Dr. A. "I have been subject, ever since childhood, to severe attacks of neuralgia of the brow, entirely independent of digestive



angement; although liable, as this affection usually is, to be aggravated by coincident stomach disorder. The pain always follows accurately the course of those branches of the fifth nerve which are distributed to the forehead, the internal angle of the eye and the nose, rarely extending also to the branches derived from the second division of the fifth nerve, and distributed to the cheek, *but always on right side only*. This kind of headache began to trouble me at the age of fourteen, and for two or three years was of frequent occurrence; for many years past, however, it has been an unfrequent visitor. One circumstance ought to be mentioned, although I cannot pretend to estimate its exact relation to the production of neuralgia, viz., that about the time when the headache first occurred with severity I began to suffer from an obstruction of the lachrymal duct on the same side. This obstruction has been ascertained to depend upon a slight stricture of the upper end of the nasal duct, close to the lachrymal sac, and is apparently caused by a tough fibrous matrix, probably the relic of some past ulceration. Treatment by passing metallic probes has been adopted from time to time with great temporary relief, but the obstruction has always recurred, and, as a consequence of it, the discharge of tears from the gland is incessantly profuse. The attacks of pain are invariably caused by fatigue of body or mind and are preceded and accompanied by pallor of the face, weak pulse, and a general sense of depression."

(b). Mr. Jas. H., æt. 62 years, (1887). "I have had bad headache about four years. It commenced in my temples, then went to my eyes; when the pain was strongest, my eye lid would fall partially over my eye. I have sometimes been so nervous that I did not know there was pain in my head, unless I called my attention to it. Feet are always very cold when my head aches, and my ears are very hot and red. My face is red or full of blood at the commencement of a headache, but it becomes quite pale when I am in the greatest distress."

(c). Mr. S. B. T., æt. 48 years (May 1877). The patient was tall and spare, of energetic habits, and nervous temperament. In 1867 he had a severe attack of malarial fever. In 1867-8 he held a responsible position; the strain of mind and body was so great that he was compelled to give up his position. At this time he suffered chiefly from sleeplessness and disinclination for mental work. In 1872 he was subject to severe mental distress and about this time *continuous* (distinct from occasional) headaches commenced and from these he has been suffering.

He thus writes: "I appear to suffer from two distinct headaches; one occurs only at distinct intervals, varying from one to three



months; the other is continuous. The occasional headache gives some notice of its approach, feeling out of sorts for a day or two previously. It commences soon after waking in the morning, and increases in intensity during the day; the pain is distracting, head hot, with sense of fullness, extremities cold, and nervous twitching. Cannot lie in a reclining position for a moment, but compelled to keep constantly rocking up and down, till sometimes ready to drop from fatigue; when pain moderates sufficiently to make sleep possible, still obliged to avoid a recumbent posture, and get my first sleep either in a chair or propped up with pillows in bed.

"The continuous headache first commenced about five years ago, shortly after a mental strain in 1872. At first, symptoms slight; would wake in the morning unrefreshed, and with a most uncomfortable sense of giddiness and weight in the head; this would generally go off at ten or eleven o'clock. But by degrees the periods of freedom from discomfort became shorter; there was difficulty in getting sleep; would constantly go to rest and sleep well for an hour or two, and then wake and be unable to sleep for several hours, generally getting up and reading in the intervals. There was great disinclination for mental work, and a putting off from day to day of business or duties, which, when circumstances compelled to be taken in hand, were transacted on the spur of the moment with satisfaction. I was temperate, but smoke freely."

(d). Mr. E. W. McGuire, Ames, Iowa, aet. 54 years, Nov. 1884

"In 1852, I had what was called diphtheria and was ill so long I could not walk for a week or two. A few weeks after this I had another attack which laid me up for several weeks; I could sit up in bed but could not use my limbs. In 1865 I had what was called neuralgia of the head; the pain was all through my head from the temples to the back of my head; this lasted off and on until Aug. 1870, at which time I had typhoid fever; this so weakened me that I was not able to be out of the house for nearly a year. When I recovered from this sickness I still had the headache and was continually taking cold. In about 1880, the pain in my head changed to my stomach after going to my stomach the secretions in the back of my throat ceased to trouble me. The pain in my stomach was so severe that I sat with my elbows on my knees for nearly two years. The pain in my stomach would come and caused a knot or cramp and this would move from place to place in my stomach. After suffering for about two years it left and went to my head. It was in my stomach all the time, but most of the time, occasionally pain went to my head. Now it was most of the time in my head."



once in a while in my stomach. The pain has been so severe that many times I have wished that my time had come to die.

(c.) Miss Agnes M. Judge, æt. 25 years. Nov. 15, 1880.

"When a child I had frequent colds in the head, at the age of 10 years, 1865, I had most excruciating pain on the top of my head. I was unconscious for two or three weeks and rolled and tumbled in bed, sometimes having my hands tied. After a time the doctor found that there was a large lump on the top of my head, this was opened with two large cuts, one crossing the other. The lump on my head was nearly as large as a cup, so my mother tells me. A great deal of matter ran out of this, and the pain in my head was so much better that I became conscious again. I have had, ever since I can remember, to use a great many handkerchiefs every day. In the spring of 1879, this abscess on my head healed. I have continually had headache ever since, and have been greatly depressed in spirits, I have many times gone from my father's house to a neighbor's without knowing it. In 1880 they gave me a douche, for a time this relieved me very much but it caused pain in my ears, and for that reason I discontinued its use."

One of the above patients had for many years been subject to toothache immediately succeeding his headache. His teeth rapidly decayed and in three years they had to be replaced by artificial teeth.

What is the nervous connection between the teeth and that portion of the head affected by the pain? The intimate nervous connection between these two regions is the *fifth nerve*.

#### 1438. *Tic Douloureux* or *Facial Neuralgia*.

Mr. A. M., — aged 45 years, consulted me June 29, 1880. When the patient entered my office he came holding his left hand upon his left cheek and talking through his teeth. After pronouncing one or two words, he suddenly discontinued speaking in the middle of a word and brought his head down with a jerk, exhibiting facial signs of excessive pain. This sudden shooting pain — as I afterwards learned — seemed to be occasioned by the least movement of the jaw, consequently he spoke with his teeth closed. He had attacks of this nature every two or three minutes during the day, and thought he suffered with them during the night quite as frequently. This disease commenced about 1878, and has been increasing in severity ever since.

This case is so interesting that I will give the course that I followed in treating it and the results for some months.

The constitutional treatment consisted in the use of strychnine or *sax romica* and quinine with the *Larix* compound. The local appli-



## NERVOUS DISEASES.

on of vaseline, one-half drachm and eucalyptol from 3 to 10 m. every morning and the application of the constant current, the negative pole being applied to the feet and the positive pole over the seat of the pain, just below the left malar bone. The strength of the electricity was such as to produce a pleasant effect upon the face. I want to mention here that it *always* controlled the neuralgic pain. As he was troubled with very cold, sweaty feet, I directed him to discontinue washing them in water and instead thereof to have them rubbed morning, noon and night with vaseline, and to wear cotton stockings, and to change them as often as they were wet.

I kept a record of his report as to how he felt each morning when he came for treatment, a part of this I will place here. This record was taken in short hand by a young lady, she being in the room while he was relating his feelings at the time of his visit to me. His own words are given.

June 30, 1880. [Shaking his head] "I have had a very bad morning. The pain was also bad last night."

Ques. "How did you feel after the treatment yesterday?"

"It did not relieve me, yet it seemed as though I had more relief in the throat. I did not feel any trouble there before but after the treatment I felt relief."

July 1. "Last night I had it pretty nearly steady, yesterday afternoon I was a little better than usual."

July 2. "Felt better yesterday after the treatment, but this morning being quite stormy I do not feel so well."

July 3. "After the treatment yesterday felt well until noon when I had much pain while in bed. Felt dizzy yesterday afternoon. The pain is like a cramp in the lower jaw; it felt stiff; could not work it well. Appetite not so good. My throat feels a little sore [I used too much *prunus canadensis* mixture in spray producer No. 1]."

July 4. "Worse yesterday and also sore night before that, but much better than at my first visit."

July 5. Not treated.

July 6. This morning at four o'clock I had pain. It was when I turned myself in bed that it commenced. Warm food lessens the pain. I have no headache. I have applied the vaseline every night as I go to bed; it makes my feet feel comfortably warm but the perspiration has not decreased as yet. I use a full teaspoonful on each foot, morning, noon and night."

July 7. "Feel considerably better to-day, but fuller in the throat. Rested pretty good although my throat was sore when I swallowed. Temperature in the mouth  $101\frac{1}{4}^{\circ}$  F. Discontinued use of *prunus canadensis* altogether.]



July 10. "Throat feels better."

July 11. "Felt good all day yesterday. I still find that I cannot speak with my mouth open. The pain is getting less both day and night. My appetite is better, feet warmer and perspire hardly as much as usual. I wear cotton socks next to my feet."

July 12 and 13. Not treated.

July 14. "Have been feeling pretty good, but had a pain pass through my forehead a few times but for a very short time each time. This would be two or three times a day. No pain at night, but restless on account of the heat. Appetite not very good except at irregular times. My feet do not perspire as much as they have been doing."

July 15. Not treated.

July 17. "I feel all right and come for treatment, but not on account of the pain. Had but very slight pains since I was here. Appetite is pretty good. Feet not perspiring. The tooth has felt a little long [directed to have the tooth extracted should it trouble him again]."

July 18. "I feel well. Had the tooth extracted. My appetite is good and I sleep well."

July 19. "I feel well. Slept well last night. Appetite pretty fair."

July 20. "I still continue to be free of pain." [Temperature 90°.]

July 21. "I am still comfortable. Last night I had a little headache in the forehead. Lasted only about one minute."

"My feet feel a little damp, they are not wet. They have not been wet with perspiration for a week or so, although I still change my socks three times a day. Sleep sound. Appetite fair."

July 22. "Feel all right so far."

July 23. "As usual."

July 24. "As usual, still feel a little difficulty in swallowing. Thought I would have to press a little to get it down. Feet feel a little better."

July 25. "Had a pain in the chest. It was of a depressing character, but is now over. No pain in the head or jaw; drinking warm or cold water has no bad effect. Sleep and appetite both good. Bowels regular. My socks are still damp but my feet do not perspire as much as they used to."

July 26. The same as for several days previous. Feet a little warmer, did not change my socks yesterday at noon nor to-day at noon."

July 27. "Doctor was out of the city, so I was not treated."

July 28. "I felt yesterday morning as though — when I brushed teeth — the pain might come back, but it did not, only felt as



though it would do so. I felt the same this morning, but have had no pain. Feet felt as though they were cold yesterday noon. I then changed my socks. It feels now as if the socks were moist, it may be from the vaseline, as I cannot rub it all into the feet. Rested good last night. Appetite pretty fair. Bowels regular. I had a sensation of pain pass through the forehead for about half a minute."

July 29. "The same as yesterday, when I was brushing my teeth, it felt as though the pain would come back, but it did not. [Directed to discontinue brushing the teeth.] Otherwise I felt all right."

July 30. "Took four grains of quinine, this made me sleep badly. Last night I felt as though the pain would come back, but it did not. Did not use the brush this morning. I had to be careful this morning in speaking for fear the pain would come back. It did not come back. It felt as though I had to be on the lookout for it. My feet felt warmer with shoes on than with boots."

[Examination shows that there is a cold in his head. He says that a few days ago he felt a cold up his nose.]

July 31. "Felt no sensation since last treatment. Feet felt warm."

Aug. 1. "Have not felt any pain since I was here. Quite comfortable last night and morning. My nose feels as though I could take it quite easily, so I put on more clothing. Feet getting better, changed my socks yesterday morning and at supper time."

Aug. 2. "No change that I can mention. This morning I tried to use the tooth brush but it felt as though the pain would come back so I dropped the brush. I noticed that the spray thrown on the gum [under the left antrum of Highmore] had a good effect. [Application made on July 31 and Aug. 1.] Feet do not perspire quite so much."

Aug. 3. "I have felt all right since I left. [There had been a very great change in the weather, not less than 30 degrees.]"

Aug. 4. "No pain. But this morning as I brushed my teeth I thought that they were quite sensitive, but felt no pain. Feet are getting nicely."

Aug. 5. "I feel about the same as a few days ago. A sensation was felt as though the pain was coming back, but it did not do so. At the same time, as I ate a piece of bread, I thought the pain would return, but it did not, otherwise I have felt well. I think that a piece of bread on the left side of the mouth, the place where I usually feel the pain [ate the bread] about 4 o'clock. While I was talking in the evening between 8 and 9 o'clock, I thought the pain would come back. The bread made the sensation much stronger than the talking."



"This morning I brushed my teeth, being very careful, but felt no sensation as though the pain would come back."

Aug. 6. "Just the same; that is, no pain. I used the tooth brush lightly, but did not feel the pain at all, nor the sensation as if it would come back. Yesterday and day before I threw up a little phlegm from my throat, but not much. Appetite good, feet good."

Aug. 7. "No change, can brush my teeth, using the brush lightly, and using warm instead of cold water."

Aug. 8. "Feel all right. No change in any way."

Aug. 9. "No change whatever that I can see."

Aug. 10. "No change, feel well in every respect."

Aug. 11. "No change. Feel all right. I used the brush, I think, about as hard as I did before, when I caused the sensation to come, but now I feel no sensation at all. I have not eaten on that side since I last reported doing so."

Aug. 12. "Continue well."

Aug. 13. "I thought last night and this morning that I felt a little sensation as if the pain would return, but it did not do so."

Aug. 14. Not treated.

Aug. 15. "No pain, but thought several times that it was on the point of coming. My socks are always damp, but not so damp as formerly, still continue to rub them with vaseline. Appetite good, sleep good."

Aug. 16. "About the same as yesterday, i.e., the sensation as though it would come on but it did not. This sensation is becoming more frequent."

#### 1439. Paralysis Agitans. The Eyelid and Brow and the Nasal Muscles.

Miss Ida M R., 27 years. (History taken from underscore blank as on page 410) September 28, 1886. Apparent health good; habit, moderate; weight, now 90, usually 111; hair, light; skin, light; complains of a quivering of the left eyebrow and the left side of the nose. This coming on especially after the use of the eyes when studying intently. She has suffered from colds since childhood. Secretions in nose great, especially after she has had a cold. Nasal respiration impeded day and night, olfaction normal, deglutition quite difficult, causing pain in the left ear. Great fatigue in talking and the voice generally quite hoarse. (The remainder of the history is the same as in the usual cases.)

Her own history is as follows: "Dec. 4th, 1886. I have been susceptible to taking cold on the least exposure ever since I was a child."



During the past year I have noticed a peculiar sensation, a quivering nerve [muscle] leading from the left eye down the left side of the nose, and occasionally a twitching on the right side. It was particularly noticeable after any mental exertion, such as reading, writing or listening to a lecture. On the 22nd of September it became almost insufferable; about that time there was an intense pain in my left ear deep in the head, twitching of the left eyebrow and eyelid, and while suffering in this way I could see a large green spot before my eye."

The first treatment relieved me, I have had a slight return of the sensation occasionally, but have never suffered as I did previous to the treatment."

**1440. Neuralgia of the Arms and Face.** (a) Mr. J. L. B. consulted me Nov. 27, 1881. The following is written by his wife.

"In the spring of 1874, he had a severe attack of rheumatism, this kept him in bed for three months, since that time he had attacks of illness each fall and spring. Every one of these attacks came on by taking cold from exposure. In the spring of 1879 he took a very bad cold which affected his head and left arm, the left side of his nose was very much inflamed. The doctors thought he had erysipelas of the face, this lasted some four or five weeks, all this time he had a severe pain in the head and arm and gradually got so weak that he could scarcely walk. At night time he would hold his left hand with his right hand and walk the floor on account of the pain in the arm. Every time his heart beat he felt as though pins would come out of his fingers, this sometimes extended to the ear and the top of the head. His throat was always painful at these times, and he thought his lungs were affected also. The doctor put a seton in the back of his neck, this was there for nearly six months. It appeared to do him some good. I put tincture of iodine on the back of his ears every night for two weeks. As the weather got warmer he got better of this. During the fall of 1880 he complained very much of pain in his head, he was so crazy with it that we had to hold him in bed. Finally an abscess broke and ran from the nose and left ear. He recovered slowly but could not speak well after this, and had a lisping way of talking. Sometimes he would leave out words or mispronounce words which would make him very angry, especially if I noticed his mistakes. During this sickness he had no pain in his left arm."

The case was treated nearly five months, he came to me Nov. 27, 1881. All his prominent nervous symptoms disappeared after about three months treatment. His memory which had been very bad, be-



came very much better. The following is his own description of how he felt Jan. 8, 1882.

"I will say in regard to my memory that it is very much better than it has been for a long time. I have been unable to remember for a week back for several years but can do so now with some effort. I feel very well all the time except that my ankles are still weak, and I feel a little sick at the stomach after eating. I sleep every night better than I have done for years.

(b). Mr. Rothardt, letter carrier, *wt.* 54 years, being much exposed by his occupation to colds, and having suffered for a number of years with chronic catarrh, together with emphysema of the lower lobe of the left lung, was attacked about the middle of the cold and wet January of 1884, without any direct cause that could be indicated, with severe pain in the left shoulder blade, which extended afterward to the upper arm, then to the forearm and finally to the hand, being especially severe in the third metacarpal space, and extending thence into the little finger, the ring finger and the ulnar side of the middle fingers. The pain was boring and tearing but not equally severe at every hour of the day; it was generally most violent in the morning hours, and in the course of the day subsided into a dull painful sensation, and at night ceased altogether. Every attempt to grasp any thing with the hand, immediately excited the pain if not already present, and increased it when it was present, so that the patient was unfit for service.

(c) Mrs. F. A. T., *wt.* 26, March, 1881. The effects of a polypus in the left nasal passage, located near the mouth of the Eustachian tube.

"My nose on this side has been full for a number of years. I feel as though I want to blow it all the time, but doing so always causes a great deal of pain, at last it grew so close that I could not breathe through this side of my nose at all and a watery and yellow secretion was at the time dropping from the front of my nose and down my throat, at such times I had to make a great effort to breathe at all (she is quite a fleshy woman, which accounts for some of her shortness of breath) many times I have been awakened from sleep almost suffocated and had to struggle for my breath. At such times I can hardly get my breath, even when I am sitting up in a chair. I have been obliged to sit up every night during the last two months and during the last week I've not been in bed at all. All this time I have a continual pain, deep in my left nostril and extending up into the left ear, I also have pain on the top of my head and down my left arm to my little finger. The pain frequently goes to the back part of my head and neck. Last week my left eye was red on account of the pain.



"My physicians told me that I had spinal disease, they gave me chloroform and applied a hot iron to my back, this did not help me in the least. Almost any kind of excitement would make me so nervous that I was in dreadful misery. To give me some relief my physician gave me a hyperdermic injection morning and evening. Before I had the injection in the left arm it seemed as though I would have to scream because of pain. At this time one of my teeth became affected and I sent for a dentist. He attended to the tooth and told me that I had catarrh in my head. This was the first time that I knew what was the matter with me."

(d). Mrs. A. F. *et. 35 years.* A woman of small stature. She has been suffering for the last seven years with a considerable degree of anaemia. On Jan. 9 h, while present at an evening company, she caught a cold, which brought on a severe griping pain in the left arm and shoulder. Her domestic affairs having at the same time called forth unusual exertions, this and an emotional condition, excited a nervous state united with palpitation of the heart, labored breathing and tearing pains in various parts of the body.

(e). Mr. H., a building inspector, has suffered for several weeks with an intense pain which frequently attacked him, but always after mental exertion and emotional disturbance. Its principal seat was in the region of the interior angle of the left eye, but it often extended from this spot to the forehead and the left nasal cavity.

#### 1441. Affections of the Eyes.

(a). Miss Adalaid W., Feb. 8, 1885. "For the last five or six years I have suffered severely from headache, sick stomach, palpitation of the heart and weak eyes. [Myopia] I have worn glasses for the last two years, but they do not do me much good. I have noticed that when I had no cold the glasses were a great help to me but when I had a cold I could not see with them nor could I see without them. Many times I have been dizzy because I could not see well. For several years I have not been able to lie on my left side because of a choking sensation. My headache was most always over my eyes, sometimes in the back of my head.

(b). Mr. F. E. A. *et. 41 years, lawyer, married.* Appearance health good (Dec. 29, 1885), habit moderate, weight 160 lbs, was the usual weight. Complaints of sore throat, pain in the ears and left eye. Has had glasses "fitted" to his eyes; these relieve him. Nostrils almost always closed, both day and night. Throat always dry in the morning. Easily becomes angry, especially at persons at his home, memory quite defective. Used tobacco for 20 years, a



whiskey moderately. Nose, extremely reddened and quite vascular.

(c). Mr. J. F. R.,—*æt.* 24 years, said in December 4th, 1872:

"I have, since I was twelve years of age, been subject to frequent attacks of sick stomach accompanied by a light, dizzy feeling in the head, brought on always by study, reading, writing or anything that requires the constant use of the eyes or application of the mind. While in this condition, the nerves of my eyes were so much affected that I could not read a half dozen lines without resting them, by shutting them rather tightly. From this cause I was unable to attend school with any degree of regularity, and in fact after two or three years, had to quit school and abstain almost entirely from reading and study for years. During this time I was apparently healthy."

(d). Miss —, *æt.* 21 years.—"As far back in my childhood as memory traces, perhaps at the age of five or six, I recollect being troubled with catarrh in my head, but suffering no pain. My voice was clear and strong.

"At the age of thirteen or fourteen, being very fond of music, I sang a great deal and think strained my voice, which changed its tone. Still I do not remember any pain except what I realized from having this pleasure denied me.

"A year latter I experienced a little pain in my eyes which lasted but a short time, then passed away leaving no trace of its presence and having had nothing done for it. In fact, I did not complain; as I thought I had strong eyes, and did not wish to undeceive myself or anyone else, indeed I made myself believe it mere imagination, but I was conscious that there was trouble and had to sit and hold my eyes.

"Sometime after this I entered the normal school and apparently had strong eyes. The studies here being difficult, or rather, having so much to do in so short a time, I studied night after night until twelve or one o'clock and sometimes later.

"I suffered almost constantly with pain and aching in my eyes and head from this time on, and have never been entirely free from trouble with them since. I did not notice any difference in sight, however, during the first year of this trouble; but they were quite sore to the touch and pressure.

"In the second year I had occasion to look at something that required the use of but one eye. Having closed my right eye, I found to my amazement the left eye was near sighted. When this occurred I did not know. It seems to get more near sighted each year. I have noticed it more in the past year or two than ever before. During the summer I had a severe spell with this eye which lasted for two or three weeks. Humor coming out of my eyes every day, and suffering from severe pain. Pressure on either side of the nose near the eye, caused pain in that eye on which pressure was made.



"After suffering with my head and eyes for over four years, my throat began to trouble me. This was my third year of teaching, I had a severe spell of sore throat this year which lasted for three or four days, after which it seemed perfectly well. Since this time I have had one or two spells—each accompanied with a chill and fever—every year until the last school year. In the beginning of my fourth year of my teaching, having taken a severe cold, it settled in my throat, and I lost my voice for several days, and could not speak above a whisper during this period. From this time I have been troubled with constant irritation, dryness and weariness in my throat. I cannot neither talk, read nor sing for any length of time without irritating myself very much. Ever since this attack my voice has been becoming more husky.

"All colds I have ever taken seemed to settle in my head, and after taking a heavy cold I would suffer intensely with my head and eyes. In these spells I have always experienced a severe pain in the top of my head where the parting of my hair is made, also above the eyes and aching in the eyes. Whenever I suffered with this pain in the middle of my head, my eyes always troubled me at the same time. At times my eyes seemed swollen and the sensation was such as one would feel if the skin from the eyes were drawn and held back for some time. My left, or near sighted eye, always troubled me most. For a year or more there has been a hair floating before it which at first made me quite nervous, and now continually annoys me. Quite frequently a pain begins at the angle of the eyes, and passes through the bones over them. I cannot read or sew steadily without pain in the eyes. Since my throat first troubled me, it always suffered from those colds in the head and is quite predisposed to cold. Indeed it has become so sensitive I quite frequently know whether it is damp or wet, on waking in the morning by the sensation in my throat; at which time it feels swollen, dry and rough.

"One year ago last May, my throat began to get sore on the right side; I burned it with iodine, and thought it was well, when suddenly it became sore on the left side but lower down. This attack lasted for four days, after which my left ear festered and discharged humor and has never felt well since. During the past summer I have had a humming noise in this ear, which extended through the left side of my head."

(6). Mr. J. J. C., sent by Dr. Wm. McMurtry, Dec. 23, 1886, history according to underscore page 410) wt. 23 years, single. Apparent health good. Habit moderate, weight now 140 lbs usually 150 lbs. Hair light, complains of having a disagreeable pain in his throat, the sensation of which he can hardly explain. At times during the last few years he has been very forgetful, so much so as to interfere with



his business. General health and appetite good. Has been slightly troubled with dyspepsia. Bowels habitually constipated. Colds constant and severe, "more than any one I know of." Headache in forehead and eyes. Pain in back and left shoulder. Vertigo severe, sometimes has to stop on the side walk. Condition of mind depressed and easily angered. Memory very defective. Palpitation of the heart just after meals. Cannot lie on the left side. Habits, smokes tobacco; no liquors. Sleep, excessive, 12 and 14 hours. Nose, pain upper part. For two years has had epistaxis occasionally. Respiration suppressed at night, been this way ever since he can remember. Anosmia for five years. Seldom has cough. Easily out of breath. Ears, audition normal. Tinnitus aurium slight. Tympanophony on the right side when he has a bad cold.

The following is his own history concerning his defective vision :

"For three years past there seems to be a cloud pass over my eyes once in two or three days, this lasts for two or three minutes. Sometimes by rubbing my eyes I can drive it away. This spot or cloud comes usually over the right eye first approaching from the outside it seems to travel across my eye until the whole eye is covered. After this has passed or faded away it comes over the left eye from the outside and seems to act in about the same way as in the other eye. This cloud or spot comes as a cloud and turns into a black spot, but it is not large enough to make the eye totally blind as I can see an object from the outside or outer edge of my eye, all around. After a time the black spot gets clear around the edge and finally the whole is, apparently, made to pass away instantly by a strong 'bat' of the eye." Every time I battered my eye it seemed to be pushed to the outside of the eye and sometimes to be made smaller, but as soon as my eye was opened it seemed to come over the eye again but a little less dark. At such times I can hardly keep my eyes open, I have to keep shutting them all the time and the cloud seems to pass away with the last bat of the eye, that is suddenly. Immediately after the cloud or spot disappeared from the right eye it would appear coming over the left eye from the outside, and behave just as it did in the right eye.

"I have noticed that when the spot was in the right eye I saw two objects with both eyes open, if I closed the left eye with my fingers I could see for a little while with the right eye as usual. The same double vision happened in both eyes. When I shut both eyes I could see a light like a whirling pin wheel on fire. At such times my eyes were very hot. Occasionally it has been difficult for me to locate the spot, that is to find which eye the spot was in. If my eyes were open the spot seemed in the right eye, then I would shut the right eye and it would seem as though it was in the left eye, but when both eyes were opened again it seemed again as though it was in the right eye.



This same sensation has occurred in the left eye. The same experiment was tried and acted the same as in the right eye.

"At such times my ears would ring loudly and my head was very light, so much so that I had to take hold of something for support."

(d). Mrs. Emily H. D., æt. 36 years.

At four years of age I had scarlet-fever. From this time I coughed with every slight cold. At eight years of age I had typhoid pneumonia so severely that I was given up by the physician. I was unconscious for nine days. Always had cold hands and feet and suffered with cold at night. From twelve years of age, I was very wakeful, and I went visiting I did not sleep at my friends house at all. In the fall of 1867 I noticed a red spot—raised, I think—on the ball of my right eye, the side next to my nose. I used burned alum on it about six or five years, and quite frequently for some years after; the eye remaining sore all the time. I could see as well, except at a distance. I did not know that I had catarrh until I was twenty years old; then I took cold constantly. At twenty-three I used to spit yellow matter from my throat every morning. At twenty-four my throat began to be sore, and was sore summer and winter. My memory began to fail me about five years ago. Many things that happened since that time seemed to be blotted out of my mind.

Two and a half years ago, my eye began to trouble me, much more than usual, two more white spots came over it; one right above the other, on the outer side of the eyeball, but near the color of the eye. I then went to an oculist, from the first of May to June 17, and afterwards went to another oculist in the East, being sent there by the first physician. The next fall I went to my family physician, Dr. Mayger of this city, and after taking one bottle of medicine prescribed by him, the eye seemed to get well, until August of this year (1885) at which time it became very much inflamed again.

Since the last attack of inflammation in my eye, I have not been able to read a line of print because of the excessive pain in attempting to look at the letters.

**1442. Three Cases** reported by Dr. C. H. Moore, Richmond, Ind.

(a). Miss Ida C., age 17 came to me March 22nd, 1885. She had scrofula ophthalmia, and chronic rhinitis, complete atresia of the right nostril and partial of the left, she had these troubles about ten years, she had a dull stupid look, mental faculties blunted, dullness of hearing, she was under observation a little over four months. Upon improvement of her nasal trouble her mental faculties were brighter, but the ophthalmia was no better.



(b). Rhinitis and retinal asthenopia. Mr. W., aged 30. Consulted me May 18th, 1887. Complained of burning sensation in his eyes sensitive to light, profuse lachrymation whenever using his eyes for near work. Conjunctiva red and injected, hyperæmia of optic nerve, blood vessels enlarged, had sub-acute rhinitis; treated his nasal trouble until June 30th, 1887, the conjunctiva cleared up—photophobia disappeared, no more burning sensation in the eyes in using them for near work, no hyperæmia of optic disk, was able to resume his work, that of express agent.

(c). Sub-acute rhinitis and ulcer of the cornea. Alva C., age 11. Called to see her Feb. 22nd, 1887. Had a superficial ulcer of cornea of right eye, conjunctiva congested, eyes watered, was sensitive to light; complained of pain in the eyes and over eyebrows had stumous habit, her general health run down, hypertrophic rhinitis with anterior hypertrophies, mucous membrane red and congested, secretion of mucus profuse. She was under treatment till June 20th, the eye trouble improved slowly and not until the rhinitis was relieved was she cured. To-day, Dec. 12th, she called at my office and there was no sign of inflammation of her eyes except a little irritation at the edge of the lids.

Dr. H. F. Hendrix, of this city, reported to the American Rhinological Association two eye cases that were very interesting. The results of his treatment and the failure of relieving the eye trouble by the oculist, prove, very conclusively, that there may be inflammation of the eye that is alone due to rhinal disease.

**1443. Stomach Vertigo.** Mr. W. R. F., æt. 32 years; single. Apparent health bad. Habit spare. Weight 149 lbs. usual 130 lbs. Complains of excessive mucus behind the soft palate that keeps him sick at the stomach. At such times he has attacks of vertigo, this is so great that he cannot stand still, one morning before he got out of bed he felt a strange sensation suddenly come over him. He felt as though the room and his bed were turning over, and he grasped both sides of the bed to keep him from falling out. He thought the house was going over and was only convinced of his error by hearing nothing but ringing in his ears and not seeing the pictures and other things in his room move. He thinks that this sensation lasted for ten or fifteen minutes, he is not certain. These sensations come on more frequently during damp weather. His digestion has been very poor and he has eructations from the stomach almost constantly. These seem to give him a great deal of relief. Up to a year ago he smoked and chewed tobacco almost continually, never drank liquors, tea or coffee. Drank water and milk only.



The usual inflammation of the mucous membrane of the head was seen on examination.

**1444. Difficult Deglutition. (a).** Mr. Geo. H. C., æt. 33 years. He complained of a choking sensation caused by incomplete deglutition, this commenced Jan. 8th, by being choked at the supper table, the food was partly down his throat and would not go any farther but prevented him from breathing; he jumped from the table and tried to make it known to his wife that he was choking but he could not say anything nor could he get his breath, he then became unconscious, dropt on a lounge and then his food came out of his mouth. When consciousness returned he tried to swallow some salava but found he could not, this frightened him most thoroughly and though very thirsty he dare not take a drink of water for fear of dying. He took but very little that night, next day he took a little tea and had to make three or four attempts before he had courage to put the cup to his lips.

(b). The affection began about seven months before the case was examined. Complained of difficulty of deglutition and of speech, which for the first two months was scarcely regarded. These difficulties gradually increased; deglutition became labored; the enunciation was rendered confused and finally unintelligible. The power of the tongue was much restricted; the velum and uvula contracted when mechanically irritated. The voice nasal, but of normal power. The patient could not whistle or blow out a lamp, except when he fastened his nose. When he drank he was obliged to pause at each swallow; a portion of the fluid was regurgitated through the nose.

One of the above patients was treated by two of the most renowned physicians of Europe. "After a fruitless trial of various remedies" the patient was sent to another physician who used electricity. "This treatment, however, had no influence upon the difficulty of deglutition." \* \* \* "and accordingly the unfortunate patient went home," without being the least improved. The case is a just one and should have been greatly improved, to say the least.

**1445. Chorea. (a)** Miss T. P. æt. 20 years.

"At the age of seven years, I had a very severe attack of rheumatism leaving me with heart disease. I suffered with palpitation and acute pains of the heart, up to the last eight years. Cannot sleep on my left side at all. In the spring of 1875 I had another severe attack of rheumatism, so the physician stated, but I believe that a lot of my rheumatism has been catarrh in the heart only, as at my last attack I was a great deal of corruption from my nasal passages. With the ex-



commencement of this attack I was unconscious and on regaining consciousness I had St. Vitus dance over the entire body, lasting over one year. I had this same rheumatic attack every spring but it was not rheumatism, my head felt like splitting each of these times and matter ran from my left ear. Last spring I had the same kind of an attack again coming on with severe hemorrhage of the nose and leaving with St. Vitus dance in both arms and hands. I have yet to hold my hands to keep them still. Last spring I could not sleep except in a chair and when asleep moaned until I was heard in the next room. My voice has been away for two years, when it went away I had a number of hemorrhages from the lungs. In Feb., 1882. I had erysipelas all over the face and neck."

(b). W. S., *et.* 22 years, Feb. 16, 1883. "When I was quite young, I suffered severely from earache, and up to my fifteenth year I was subject to severe headaches. When about ten or twelve years old I had large scabs come from my throat; these came away in the morning after breakfast, and very frequently my breakfast came with the scab. I blew no mucus from my nose but always hawked it up. Have never taken the least care of myself up to a few years ago, frequently wearing my wet clothing all day. When thirteen years of age, a relative of mine got me a nasal douche, this I used once or twice a day for about one year. As a rule the douche relieved me but once in a while, it hurt my head very much. I have smoked and chewed tobacco incessantly from the time I was thirteen years old until about one year ago. I quit because it hurt my head and throat very much. When I was fifteen years old I became addicted to self-abuse, and kept myself very weak and exhausted by the habit. I followed this habit until two years ago, at which time I had an attack of jerking of both of my hands and head. I could not hold my hands still unless I grasped them. I had noticed my head twitching of itself, for some weeks before, but my hands commenced jerking all at once, and then my head did so too. I was very much frightened and knew that it was from my habit. This jerking continued for about three weeks, I noticed that the more persons looked at me the worse my hands jerked. I slowly got better."

**1446. Auditory Vertigo.** (a). Mr. J. B., lawyer, *et.* 47 years (Jan. 28, 1887). "About two years ago while in Chicago, I was taken quite ill. I found myself very dizzy, almost unable to get out of bed. It would, some mornings, take me an hour to get up. I was more dizzy by night than by day. I did not smoke or drink but chewed tobacco continually while awake. For several years before this time I had been taking many colds and in fact had a very severe cold at the time spoken of. This cold seemed to effect my lungs also, I did not



have a particle of pain in my head nor any discharge from throat but had some from my left ear. This ear had been affected for a number of years, and I was, to all appearances, entirely deaf in this ear. During the summer of 1881 the discharge from my ear ceased. About this time I discovered a new source of annoyance which seems to me to be a very serious one, it is a continual noise resembling escaping steam. It commenced while I was near a stationary engine which was blowing off its surplus steam, this sound has continued ever since and seems to me as though the steam was inexhaustible as the sound has never ceased, yet it is sometimes more sonorous than others, when have a cold the sound is more disagreeable, my feelings during all the time seems to partake of a very languid nature, I wanted to sleep ten day as well as night, yet I was strong and held my flesh. My head during these ten years has never pained me, yet the dizziness has been more or less all the time. However, I think on several occasions I was entirely free from dizziness, perhaps for a few days. I now have the same dizzy feeling at this moment while I am writing. However I have mentioned this fact before, but I mean to impress the fact of constant dizziness. I am better to day than I have been for four or five years."

(b). Albert L., Stanford, Ky., *æt.* 29 years, single. June 24, 1875. Sent by Dr. P. W. Logan.

Has mental complications. Present symptoms: Nose; pain great in the upper portion of the nose, secretion greatly increased; ~~and~~ respiration suppressed at night, has been so for six years, headache a forehead, occiput, and pain in the back of the neck and right shoulder during the last twelve months; anosmia almost complete; colds constant and severe, "more than anyone else I know of." Throat: pain swallowing, fluid sometimes passes into the nostrils; during the last six months cough night, constantly clearing his throat; vocalization difficult, if he has a headache and talks for sometime he becomes confused. Ears: defect of audition great during the last six years; tinnitus aurium constantly intense, especially during the last six months has tympanophony after speaking a while. When he speaks with his mouth open to the usual extent the sound of his voice goes to his ears. He speaks entirely through his teeth, because his voice sounds to him much louder and more disagreeable when his mouth is open than when it is closed. This gives a peculiar intonation to all his words. When he yawns and turns his jaw toward the right—the left ear being the one most affected—he hears a crackling sound in the passage to the left ear, at the same time the sound of the air from the throat goes up to the ear quite forcibly, not causing pain but is quite an unpleasant jarring sensation. Also when he draws his breath in



effort to hawk, or clear his throat, the air frequently has a direct effect upon the drum, causing a little pain and dizziness, the effect upon the ear is that of straining. When he laughs it causes an unpleasant feeling in his ear, because his breath goes up and deranges his hearing for some seconds afterward. After he has been listening for sometime, even when he has not been speaking, he is not able to hear as well, and what is spoken to him is so confused that he does not understand it, that is, he forgets the words spoken before and remembers only the last words. At the time as he was making this statement he felt a dizzy sensation, and forgot what he was going to say. His conversation was interrupted a few minutes. After drinking a little water he felt better. It was compelled to go to the window and get some air as this had a relieving effect, the history was not completed until the

After reading over what had been written, he concluded,] he is speaking to two persons, and turns his head first to one and then to the other, the turning so confuses him that he cannot hear. He is not able to speak in answer to their conversation, because he keeps his thoughts on the subject that the three were conversing about. This disability has frequently occurred, much to his annoyance. As he gave rise to unpleasant remarks by others, he not knowing how to explain it to his own satisfaction or that of anyone else.

As the ear-air-canal has become permanently open by talking, when he becomes excited, he keeps his ear trumpet—a tin ear trumpet 12 or 13 inches long—pressed closely into the left ear so that the air may enter the mouth of the trumpet and counteract the effect of the voice going up to his ear from his throat. After speaking a few minutes in this way he can feel that the sound does not go so strongly from his throat, then he speaks without having the ear trumpet in his ear.

When he gets between his teeth and if in the endeavor to release his tongue he causes any irritation, this irritation seems to go down to the base of the throat and neck as far as the collar bone, it also affects the right ear. This formerly occurred in the left side and it causes a drawing in the ear, this has given him much annoyance. In pressing the ear trumpet into the left ear it is apt to cause a sensation of hoarseness or huskiness of the voice. To relieve this he has to hawk or clear his throat.

John B., æt. 47. Iron railing manufacturer. Nearly eight years ago, he became troubled by noises in the left ear, which he described to the singing of "canary birds," and afterward this subject changed in character, and he described it as a continuous noise like the escape of steam from a boiler. To this sound he has become partially accustomed, he never had earache, but nine



years ago there was a discharge from the left ear, but there has since been no other symptoms. He has suffered for a long time from pharyngo-nasal catarrh, and there is now a catarrh of both Eustachian tubes. Sixteen months ago, during hot weather, he was seized in the street with dizziness and reeling, and was obliged to grasp a lamp post for support. There was no loss of consciousness, and he realized fully his condition of helplessness. He had these attacks very frequently.

**1447. Vocal Disability.** (a). Rev W. T. R., *et.* 29 years (Feb. 11, 1882) "During the winter of 1880 and 1881 I contracted a severe cold in my head which made itself felt by a protracted hoarseness, this was accompanied with occasional chills. During Jan. 1881. I held a protracted meeting at Decatur, Ill., at which time I was quite hoarse and had three dumb chills in daily succession. My chills having formerly been every other day. I persisted in preaching, nevertheless, and on the day following, the second chill, took 25 grs of quinine and also a tonic (calasaya, iron and strychnia). Came home no better and changed my physician, who also prescribed the above tonic and an astringent and the application by an atomizer of tincture of iodine one part and sulphuric ether two parts. I got worse constantly especially after this application and quit it after three months trial. I have for the past month done nothing except to gargle tincture of myrrh a few times and apply induced electricity to the throat outside, perhaps a score of times. I have never suffered the least pain in my throat at all, except a tired aching after exertion in trying to speak. I have good health otherwise, appear good and can sleep sound.

"At times the effort to produce sound is utterly ineffectual for a second. No air passing through the throat and for a few moments every word is pronounced with extreme difficulty.

[The reason of this difficulty was unknown to the patient. I noticed when he spoke to me at such times, as he has just mentioned that his abdomen was completely contracted and he had forced every particle of air out of his lungs with the very first monosyllable, leaving no air to produce the remaining part of the word or sentence. He then now took another breath—and he took these very frequently—so that also would be consumed in making a single syllable; so completely were the vocal cords paralyzed that they could not approximate each other in the least degree.]

"At such times the violent efforts of my abdominal muscles to assist in producing sound, results in a tired soreness for a short time after the exertion. At the time of these violent efforts, I am compelled to breathe much more frequently than usual, the air in my lungs



becoming exhausted at the very first effort of speaking, I cannot speak more than five or six words until I take a long rest.

"Sometimes on attempting to speak in the ear of my wife [this is always the way in which he spoke to her] I find on opening my mouth a momentary inability to even expel any air from my lungs. My throat, lungs and abdominal muscles being seemingly paralyzed for the moment, and I wait (as it seems to me) for my throat to get ready to act."

In a letter received from Rev. Mr. R.—dated from Denver, Colo. April 30, 1883, he says:—

"My throat seems to grow slightly stronger each month, after coming to Colorado a year ago; but I still whispered with inhaled breath, mainly. [When he first visited me I noticed the excessive physical exhaustion occasioned by a few minutes speaking, this exhaustion was so great as to occasion a flow of perspiration over the whole body. I could see at once that it was occasioned by his endeavor to speak while his abdomen was collapsed. His abdomen became collapsed, forcing the diaphragm up and thus forced all the air out of his lungs the first syllable that he spoke. For instance, in commencing his conversation with the word "yesterday" the whole of his breath was exhausted while saying "yes"—terday, was expressed by a motion of the lips only, and a peculiar sound that could be only made as one takes in his breath, after expelling all the air that it is possible for him to do, a kind of gasping sound. At first I told him to take a breath for every syllable of every word, and mentioned the fact of his endeavor to speak after the air had been forced out of his lungs, by the pronunciation of the first syllable. This plan did not work well, as it disjointed his sentences to a confusing extent. I then advised him to talk while drawing in his breath, the sound then came from the smallness of the space between the base of the tongue and the posterior wall of the pharynx. He had complete control of this space, whereas he had no control, whatever, of the space between the vocal cords. This method of vocalization was a success, and he used it constantly as he indicated in his letter.] He continues as follows:—

"But about the last day of Oct. last (1882) I suddenly began talking aloud and have continued to do so ever since that time. My throat was, of course, very weak and a little talking would weary me very much, a few times, at intervals of two or three weeks, my voice would grow weaker again, but never so weak that I could not whisper with the outward breath, and usually I could even at these times speak a few words at a time aloud, but for three months past I have constantly talked aloud and can converse as readily as ever, though an unusual amount seems to tire me slightly yet.



"My throat is growing gradually stronger and I am feeling hopeful of final recovery after awhile, though this can only be after patient waiting.

"The only treatment I have had since coming here has been spraying my nasal passages and throat with vaseline, but this has only been when they seemed to be inflamed.

Respt. yours

W. P. R."

(b). Dr. A. A. H., *et.* 43 years, Feb. 27th, 1877. "For many years I have been inclined to sour stomach, I have been liable to take cold and have had a cough since boyhood. During the last three years my throat has been very badly affected. In Dec., 1874, my soft palate and uvula was so much swollen that I could hardly breathe. I could scarcely swallow water. For six months after that time I could eat nothing except in the shape of soup. At this time I had great pain in my left ear and paralysis of the left side of my face, for this I took strychnine and quinine and I had electricity applied to my face twice three times in St. Louis. Last Dec. I took a very severe cold and the paralysis of my face returned again and with it the escape of saliva from my lips, at this time there were many words that I could not pronounce and many of the tones were quite nasal but I could breathe through my nostrils all the time. The pain in my ear continued so severe that I could hardly rest. On the first of Feb. I used a steam atomizer, it appeared to give me great relief but I had a severe spasm of the glottis that night just as I fell asleep. I used the steam atomizer again the next day and while asleep in my office I had another spasm of the glottis. When I mispronounced a word it confused me so that I cannot pronounce the next words at all and it made me feel as though I did not have long to live."

(c). Mrs. B., *et.* 24 years, Sept. 1888. Water 1 pint; table-salt 1 teaspoonful; and carbolic acid 20 drops. All of this was passed through her nostrils each time, and repeated three times each day for a little over three weeks.

This was used as a treatment for a not very profuse nasal catarrh. She did not think that she was badly affected, but used it by direction of her physician for fear she might be.

The effect was to greatly increase her catarrhal symptoms but especially her headache, this latter trouble was intolerable, both day and night. With this pain she had what she termed "smothering spells" at which time she had difficulty in breathing. It is easy to account for these symptoms through the injurious influence of the carbolic acid upon the pneumogastric nerve. I would not give the history of this case had this been all that she complained of; the following is the



symptom that is interesting and instructive; and is given in the language of her husband:

"A few days before she quit using the douche, she began to speak very indistinctly; when she wished to say 'mind' she said 'min' and 'ay' for 'day.' Then on the next day she could not say 'the' it was 'e,' she got so that she could not say anything that I could understand. I first thought that it was because she had such pain in her head, that she could not speak plainly, since she was crying all the time. Her mother first noticed that she could not speak plainly."

This condition of extreme difficulty in articulation lasted about two weeks, since which time she gradually recovered the control of her tongue, soft-palate and lips, these organs all being affected by the carbolic acid in the solution named. The lips recovered their use first (facial nerve); the tongue next (the glosopharyngeal—as the sense of taste was completely obtunded—branches of the fifth and the tenth); and the velum last (branches of the fifth, pneumogastric and tenth). The sense of smell had been obtunded for several years, and is yet absent.

**1448. Heart Ailments.** Miss S. C. W., æt. 22 years (June 14, 1883). "My symptoms go back to 1872, I have not been well since that fall. At that time I had a severe attack of typhoid fever and every year since I have felt the effects of this sickness. In the fall of 1873 I was troubled with palpitation of the heart and could not lie on the left side. I must have had catarrh at that time as I used a great many handkerchiefs every day. In the fall of 1874 I had a very severe cold which affected my eyes. I had the nasal and heart symptoms at the same time. I did not have a bad cold until the winter of 1878 at which time my hearing was much affected, after which it passed away to a great extent but I've never heard very well since. In the summer of 1878 I had severe headaches and was so ill that I went to California for my health. In the summer of 1879 my right eye began to fail me, for which my physician recommended glasses. My health was then pretty good until the spring of 1880 when I took a very severe cold which affected my eyes and ears. In the summer of 1881 my eyes grew very weak and my hearing more defective. I did not subject myself to the least draft without feeling ill from it, at this time my memory began to fail me, I found myself unable to call to mind things I had known perfectly well. Could not play upon the piano with assurance, pieces I had played with perfect ease one year before. During the fall of 1881 I had a severe attack of asthma; felt this more strongly in the spring of 1882. At which time I had excessive sneezing spells. Most of last year I spent in Chicago under



the care of two physicians. I think I am stronger in general health but all of my catarrhal troubles are worse. When I came here the pain in my heart and my spells of suffocation from palpitation were almost of daily occurrence."

**1449, Defective Memory.** (a). Mr. A. G., *et.* 43 years (Jan. 26, 1885). "When a boy I was often told that I was breathing hard or heavy, I suppose that some obstacle in my nose prevented me from breathing easily through that organ and caused me to breathe partly through the mouth. When I was about sixteen years old, on a cool summer day, I bathed in a stream of cold water, from which I took a severe cold. Soon after my nose became very sore and filled with scabs, the nostrils being entirely closed with incrustations, at that time the surface of my nose, from the tip, half way up was very red and has been so ever since. A great many persons think that it is from drinking, but I have never been addicted to any kind of liquors, not even beer. Eight years ago I noticed that the secretion from my nose was mixed with blood and if I held my head back the blood came out of my mouth. For some time I thought I had bleeding of the lungs. I consulted a physician and after examining my lungs he said that the hemorrhage came from them. As I was not satisfied I went to another physician and he told me the same thing. A friend of mine gave me a prescription composed of soda, salt and water. That lasted with some benefit. After a few months I consulted a third physician and he prescribed an injection of tannin I used this two or three times and found that the cure was worse than the disease. I then tried most of the patent remedies and found better results from them than I had from the physicians. Last fall (1884) I noticed the irregularities of my nose, and also the great impairment of my memory. At these times I was very much depressed in spirits and angry with everybody. Strange as it may appear, the secretion from my nose was less than at any time for a number of years. During last Oct. and Nov. my whole system was chilled to the bone every time I went out. Immediately after returning home I had a sensation as if some severe sickness would be sure to befall me, so much was the dullness in my head, depression of my mind and the lack of memory. I am sure I never before heard of anyone experiencing such a variety and degree of symptoms. I think now that most of my illness come from the use of patent medicines."

(b). Capt. J. C. S., *et.* 52 years, gave the following history of his case.

"During the war 61 to 65, I contracted nasal catarrh and during the few years following, my recollections as to the effect is rather a



Istinct, only that I suffered from frequent colds and a dry (parched) condition of the nostrils, I do not remember that I used any "remedies" until about the year 1872, when I went to a prominent physician in Kansas, for treatment. Just what the treatment was I do not remember only it was "spray" in the nostrils only, and after a time finding no relief from it I discontinued it. The doctor applied the treatment, and, as I remember, gave me no encouragement. For several years after this, at times, I used "inhalers" "snuffs," smoked "cigars" etc., when suffering from severe attacks. About the year 1877, I consulted an eminent physician in Iowa. Who advised me to use salt-water with a douche—"only this and nothing more"—which I did. During all these years my catarrh was growing worse. I suffered with occasional pain in the forehead, and I realized painful mental effects, affecting my memory and at times causing great depression. These effects were especially noticeable after attacks of cold. In 1881 or 82 I went to and consulted an eminent physician in Cincinnati who prescribed 30 grains of Boracic Acid in 1 oz of vaseline to be used in the nostrils with a camel's hair brush. This gave me some relief and I continued its use, but no cure was effected. For the past few years the mental effect has been marked, I realized it to some extent then and more fully now. I suffered a sense of loss of memory and great depression at times. Also I found it difficult to think, that is to fix and hold my thoughts or even to read a few pages without "wandering." The effects of loss of memory, depression of spirit, the inability to fix and hold the attention, are worse than the merely physical ill, for they involve greater loss and vastly greater suffering.

"For the past few years I have found it impossible to avoid taking cold, and during the past winter, up to the time I went to you for treatment, I suffered as from a continual cold. I am now very sure that another effect of my catarrh was quite a severe case of dyspepsia from which I suffered three years or more, this I had partially overcome by dieting, hot-water and discontinuing the use of tobacco, but I still suffered severely when I went to you for treatment. All symptoms are gone for the past two months or more. I began treatment with you about the first of July, 1887, and am better every way. Am not taking cold as formerly. Am not conscious of the depression which I suffered, and while the effect on my memory is not so marked as the other, yet I am sure there is much improvement, and I can rely on memory more, I can read and think with more satisfaction."

**1450. Hallucinations.** Mr. W. J. H., *et.* 41 years (Jan. 18, 1884). "His greatest torment is his confusion of thought and ex-



cessive fright, he thought many times that he was going to die but did not tell anyone of it, not even his wife. He became very impatient at times, so much so that he could not attend to business. Too impatient during the last two years to write a letter. He is continually desirous of changing from one place to another and his train of thought is as constantly changing, he thinks all this wearies him very much. His neighbors desired him to run for sheriff but he resisted this honor because he feared that they would find out that he was a rick man. He was compelled to quit teaching school on account of it and to get farther away from every person, he would take his gun to hunt, purely for seclusion. He has not gone to church for five years, nor has he attended a school exhibition in the same length of time, because he feared they would discover his nervous condition. While attending the last exhibition he observed that if he did not keep his head moving, slowly from side to side his head would jerk to one side or the other. This so disconcerted him that he desisted attending such gatherings. In 1872 he was elected to fill the position of Justice of the Peace and appointed Special Deputy Clerk for issuing marriage licences, these positions he was soon compelled to forgo because of the nervous condition of his mind."

**1451. Sleeplessness.** (a). Mr. Geo. C., æt. 66 years Mar. 1897). Apparent health good. Habit moderate. Weight 10 lbs. less than usual. Hair light, skin light. Complains of a stoppage of the nose, especially at night. This stoppage is very peculiar or rather has a very peculiar effect upon him. The stoppage is so annoying or irritating he says he cannot sleep—he repeated the words "cannot sleep" several times, by way of emphasis. This disagreeable sensation "compels" him to make efforts at clearing the nose by blowing and snuffing which in turn always increases the severity of the sensation, and in turn, occasions a vacant feeling in the stomach. This vacant feeling is not relieved by eating or drinking. Blowing the nose gives rise to sensations of vertigo. He knows that all his efforts at clearing his nose will bring on these disagreeable sensations "yet in spite of this I have to do it and there is no use of anyone telling me not to do it, because I have to do it, and that's all there is to it." He continues these unavailing efforts for hours at a time, every night, until he is completely exhausted. These sensations of fullness of the nasal passages usually commence after he lies down to sleep. This condition of his symptoms has continued for weeks at a time.

His present subjective and objective symptoms are those usually accompanying severe rhinitis.

**1452. Melancholy.** (a). Mr. J. I. D., æt. 31. "I herewith



detail to you the symptoms of the disease with which I am afflicted I will probably feel bright and well for a week, cheerfully perform my duty, and be pleasant in disposition, when, all of a sudden I feel a pain in my forehead extending on the top, sides and back of my head, at the same time my right eye is affected, and becomes unsteady. When I get this pain, my mind is wrapped in a stupor, and my memory not very fresh, and a humming in my ears at intervals. I then feel despondent, and it seems that I am indifferent to every thing, and at such times feel uneasy, and I try to be cheerful but of no avail—as soon as the pain in my head leaves me, I feel as if I had awoke from a dream, feel buoyant, work with pleasure, and then hope and wish that I may never be troubled with this pain again. I have in the foregoing stated to you, as near as possible, how I am affected."

Two cases reported by Dr. R. W. Wilcox. New York, N. Y. (b). Mrs. C., aged twenty-four, married six years, never pregnant, was soon during convalescence from an attack of peritonitis of moderate severity. She was anæmic, hypochondriac, excessively nervous and easily excited. For some two or three years she had been subject to repeated head colds, each one of greater severity and longer duration than the preceding. Breathing was not free, and mouth-breathing at night with its attendant symptoms was complained of. Neuralgic headaches were marked in forehead with considerable deafness in left ear and cracking on deglutition, some singing in both ears and there was also a moderate mucous discharge from the nose. The nose presented enlarged inferior turbinated processes more marked on left side. The naso-pharynx showed an increased secretion with some dried mucus, all of the membrane was more vascular than usual. Both membranes tympani were opaque, the left more than the right, with increased vascularity, the shining spot being present in both. Politzer's inflation doubled the aerial conduction [audition] and ordinary conversation was well heard. Systematic treatment by Rumbold's method continued over four months was followed by an entire disappearance of the hypochondriasis and the nose and the naso-pharynx became normal as far as subjective symptoms were concerned. The singing is only occasionally present and in the left ear only. The membranes tympani are still dull but the hearing is nearly normal. The only general treatment was the administration of iron.

(c). Edward L., nineteen years old, sustained a fracture of the nose three years ago. Although he had suffered from colds in the nose, yet his nose had not given him particular annoyance until since the accident. Two months before he was seen he had undergone some sort of a cutting operation at the hands of a specialist, which had left him worse than before. His waking hours were fully occupied with



blowing his nose and beating a devil's tattoo with his fingers. He was listless, fidgety, nervous, disinclined to any mental exertion and his thoughts were entirely upon his nose. Generally in good health, his condition was not much worse when he had colds, in fact it was difficult for him to say whether he had a cold or not. His sleep was interrupted by the attention which his nose demanded. He breathed entirely through his mouth and his conversation was always thick. On examination he presented a broadened, somewhat depressed bridge. Anterior rhinoscopy showed only muco-pus and a densely engorged mucous membrane, both nostrils being obstructed. Posterior rhinoscopy showed a profused purulent discharge with great swelling of the nasal mucous membrane, there existed, also some granular pharyngitis, the doubt as to how much the obstruction was due to hypertrophy and hyperæmia of the soft parts and how much to the condition of the bone and cartilages, a pledget of absorbent cotton moistened with a solution of cocaine was inserted in each nostril with the result of demonstrating that, although the septum was deviated, yet free passage on both sides was possible. The nose was cleansed and sprayed according to Rumbold's method. The cocaine was not used again but the rest of the local treatment was kept up diligently for six months. At present there is free passage, nose breathing is the rule, and unless he goes into a dusty atmosphere he is comfortable. There is also a marked improvement in his mental and nervous condition and he believes himself so much benefited that he does not consider further attendance necessary.

**1453. Irritability of the Disposition.** (a). Mr. A. W. 42. (March, 1872) In 1860 I got so angry with a man that the perspiration flowed from me profusely. I became dizzy and had to hold myself in order not to fall over. It lasted not more than five or six minutes and occasioned excessive pain in my head. This pain lasted a long time and was not alleviated by pouring water on my head; the next day I was all right again. In a week or so after this, a man reputed the truthfulness of my word which exasperated me above measure and then the same sensations came on me again. All efforts to relieve me were in vain. I had control over myself but a fear pervaded my entire system that I was on a stage where I might fall to the ground any moment. I attended to my business, but every morning I bade my mother adieu with an apprehension that it might be the last time, although I did not tell her so.

I went to several doctors and they made the subject of my symptoms a derision. One examined my heart and lungs but found nothing wrong there, I told them about my cough and blowing thick



could wake and have to turn back gradually; a fast motion surely engendered fatal results. I got so I woke immediately in my sleep I was conscious of the perilous condition, the existence I endured from Feb. until the last of June."

A case by Dr. A. DeVilbiss, Toledo, O. "Miss L., aged 18, brought to me for examination in the month of Aug. 1885. She had good parentage and excellent habits; had light blue eyes, light complexion. She had been subject to repeated attacks which caused marked obstruction to her nasal passages, nasal tone and an intense pain in supra orbital region. In Feb. 1885, she was compelled to quit school on account of inability; failing to pass in her examinations, thinking how fully understood her studies, and when corrected by her mother indignant and abusive. This condition of her mind was extraordinary and her parents were advised to remove her. She was taken to her home in the country, her friends thought the quiet of country life would aid her mentally, but in this condition did not improve. She became cross to her mother at night and would not stay in any room at night, light burning; her appetite was variable, some days she ate heartily, other times not any and sometimes ate at night. She was abusive to those she loved most when well, continually using words of censure upon them. She had to be continually restrained, she sometimes attempted violence upon younger members of the family.

On a rhinoscopic examination and found diffused thickening of the mucous membrane of both sides; the increased thickness



cavities into one or more of sinusses situate under the anterior portion of the brain, that portion that performs the mental functions. That a discharge from the membrane was retained and could not escape owing to closure of the out-let; and I believed that as soon as the swelling could be reduced by proper treatment her former mental condition would be restored.

"I commenced treatment by making applications with No. 1 spray producer in the nose and a No. 5 posterioral passing five drops out of wintergreen to the ounce of vaseline, making the application every day, at first; then every other day and finally twice a week. The whole time of treatment occupying a little more than two months; at which time I sent her home well, mentally; advising her to use a spray of vaseline every few days with a hand spray producer which I furnished her. Since that time I have seen her on several occasions and learned that there had been no recurrence of her mental trouble."

Dr. DeVilbiss has treated four cases of insanity; four of epilepsy three of chorea, all due to nasal disease. Three of the insane patients recovered, one died. Three of those afflicted with epilepsy recovered in one there was no improvement; all the patients having chorea recovered.

(b). Mrs. —, *et.* 48 years, consulted me in June, 1875, for a pain in the head, which was frequently accompanied by a fullness at the top and back of the head. She had not lost flesh, bowels constipated, appetite variable. At such times as her appetite was best, she was most irritable and despondent. Caught cold continually, it made no difference whether she was in the house or out of it, she would take cold. She had a slight cough, but no pain in the throat or chest.

As soon as she recovered from the pain in her head and ate heartily of a supper, her temper was ungovernable, she felt as though she could "jump on" her husband if he spoke to her; for a strong effort to speak to her had no effect. She was frequently sorry she could not govern her temper; at other times she did not seem to appreciate her extreme unreasonableness and loss of proper self respect.

(c). Mr. —, a farmer, *et.* about 42 years, a bachelor, consulted me in October, 1875, for a slight sore throat. On inquiry into his history, I found that throat symptoms were the least of his trouble. Since he was a boy he has been very liable to take cold in his head which would result in excessive flow of mucus from the nasal passages and pain in his ears, although he has never had otorrhea. He had been addicted to smoking and chewing tobacco since he was 16 years old, and has taken small quantities of whiskey since he has arrived at manhood. He has had some pains in his head for many years and feels very weary all the time but especially so in the morning before rising. He has had great pride in the management of his



arm, but when he found himself so wearied, even after a night's rest, he became very despondent, going so far to settle all his worldly affairs preparatory to committing suicide. This fit of excessive despondency was, in part, occasioned by his offending a servant who had been in his employ for many years, he stating that he would not work for so cross an employer. Of late his eyes has given him much trouble, especially when he attempted to read. He has more or less trouble for twelve or fifteen years; this has increased during the last three months. For the cough he has taken cod-liver oil almost every day during the last eleven years. At each attack of cold he has more or less pain and fullness in the back of his head. At such times he cannot read the local item of the newspaper without discomfort, and "his power of mental appreciation was reduced to that of a child." He has had tinnitus aurium ever since he could remember, but of late it has been very much increased and sounds like the wind blowing through the leaves of the trees. In putting his tongue out it trembles and is turned to the right. On walking he feels dizzy. Previous to last spring he could climb a ladder he had in use in his barn, but at the present time he is sure he would fall off before reaching the third round. During the last ten or eleven years he has lost all sexual desire, and thinks this is the cause of his trouble. His lips feel thick and are hot. It is to this he ascribes his inability to pronounce certain words, as "before." His bowels have had a constipated habit for many years; his appetite is not good; nor does he sleep well. He ascribes this to the fear of being burnt out by discharged servants.

**1454. Mental Weariness.** Mr. —, *et.* 42 years (1891). "I am under a continual sense of depression, I cannot think of anything but my condition; that is the only subject that does not weary me to keep in mind. I have long ago given up taking care of the cash amount of my business. That kind of work wears me more than anything I can undertake. If I do undertake to look over my books my head begins to ache at once, my eyes water and my ears ring with a disagreeable noise; and if I still persist, I forget what I wish to look for so it is useless for me to continue that kind of work. Then again as fact that I cannot make a prolonged or successful examination of my books fill me with melancholy and fear of losing my mind. I have noticed that on occasions when I make a determined effort to examine my mind, that my kidneys flow very freely, probably passing fifty three times as much urine as usual."

Cases resembling the above are very common in rhinal practice; indeed so common that it is no longer instructive to give the histories of such afflictions.



**1455.** Cases reported by D. N. R. Gordon. Springfield, Ill. (a). Mr. S., aged 25 years, teacher, atrophic naso-pharyngeal catarrh, of some eight or ten years standing. He came to me for treatment because the catarrhal inflammation effected his mental vigor and he also feared it would extend to his lungs having lost an aunt from phthisis pulmonalis. His mental indisposition was one of torpor in which the usual activity of the mind was much reduced below that of former years, while there was no pain in the head there was a sense of heaviness in the anterior cerebrum, which fullness increased under mental work. Study to him, which had been previously a source of satisfaction, became an irksome duty. Under local treatment his mental condition rapidly improved as well as the catarrhal inflammation.

(b). Mrs. C., age 33 years, housekeeper. Hypertrophic catarrh of medium severity, that is as far as the physical appearance of the nasal chambers were concerned; had taken cold easily for a number of years, but for the last three or four years seemed to be despondent, melancholy and forgetful, at the time when her catarrh gave her no trouble; she complained of some pain in her head but not severe, she said her mind was slow to act and required great effort on her part to perform ordinary mental operations as required in conversation; she had been carefully educated at a catholic convent and possessed many attainments, hence she was much pained at this loss of mental activity.

I gave appropriate topical applications to the nasal and post nasal passages with systemic treatment and had the satisfaction of witnessing a rapid improvement.

**1456. Morbid Fears.** (a). Archie H. McH., *et.* 17 years (April, 1884). He complains of pain in the nasal passages, ears and throat, nothing unusual was seen in the examination of the case. At the third visit he told me that during the last two years he was possessed of uncontrollable fright but this never came on except at night, sometimes when he went out with his friends he would be so weakened by fright that he could hardly walk home, and when he came to the door of his room he could hardly take time to open it with the key, besides the usual lock he had two bolts on his door and kept a lamp burning all night."

(b). Miss J.—, *et.* 28 years, says:

"One of my earliest recollections of reproof from my parents and friends was for my attempts at removing from my palate something that almost continually annoyed me, but of which I made no remark, for I supposed that every one had the same difficulty but was not quite so much given to fussiness as myself.



"I do not remember that the place then felt sore, or grew any worse in any way; but after every cold settled there, and the palate got inflamed and quite sore.

"Somewhere about the year 1860, I began to be disturbed in my rest at night by frightful dreams and would wake up very nervous and scared, and could not sleep for hours. This went on for years, I gradually becoming more wakeful and more cowardly, as I then thought. I got so that no matter what time I went to bed, I nearly always woke at 12 o'clock, but never was asleep at 1. If I retired at 9 o'clock I slept until 12; if I went to bed at 11, it was just the same; I woke at the usual time. If I was up at midnight engaged with company, I did not escape the distressed feelings which I cannot describe.

"When I awoke my eyes would open, but I was often at a loss to know whether I had been asleep at all or not. My head would burn but I had no pain. The room would seem full of sparks of fire, and my hearing so acute as to be painful. I would do such things as would only be expected of a crazy person. I kept a broom in my room for the purpose of putting it up the chimney, to be sure that nobody was there. I would grope around under the bed in the dark, feeling certain that some person was in the room besides myself. Many times my head has been in such a state that I was sure beyond a doubt that some one was breaking down my room door, when the actual fact was that there was a perfect stillness in the house. Sometimes the house became so intolerable to me that I wrapped myself in blankets and went out on the second story porch. This condition always lasted until daybreak, when I would sink quite exhausted upon the bed and fall asleep. I always attended, during the day, to my usual duties, but grew so nervous that I would never willingly encounter a stranger. In this state I lived for some three or four years, getting neither sympathy nor relief.

"After a time this fever did not go off with daylight, but was apparent during the day to my friends. They saw a strange look in my eyes and made me seek medical advice.

"About this time a friend visiting me from Cincinnati would notice an unnatural roughness in my manner at times. She would give me a look in the face and say 'never mind, I know what is the matter.' The others would make light of it, so as not to hurt my feelings.

"The disease then seemed to settle in my throat. I could scarcely speak a half dozen words without very great pain. I was obliged to hold my head with both hands, as if to keep it from falling off, so swollen and heavy it would feel. It seemed as if both sides of my throat were rubbing together. I have suffered more than words can tell through that period of my life; that is for eight or ten years."



**Concluding Remarks on Lessons Taught by these Cases.** No one can read these cases without being struck with astonishment that in no medical work is there the least intimation that mental and nervous troubles can be due alone to rhinal inflammation. The gynecologists have long ago called loudly to alienists, and have received an approving answer; the ophthalmologists have received alike answer; the specialists practicing the treatment of the disease of the geneto-urinary organs have also received recognition from brain treatises; but the rhinologists, those who have care of the organ situated immediately under the brain, receive no recognition from them.

If some mysterious ailment has taken off an individual and an examination of the body be made in the endeavor to learn the cause of death, it is altogether likely that a very careful inspection may be made of the brain. Every portion of this organ will be scrutinized, not only by the knife, but by the aid of that fine searcher, the microscope, and every slight enlargement of the blood vessels will be noted, every variation of color will be commented upon, and the symptoms during life will be compared with the effects that these physical changes might occasion. The examiners may be satisfied that they have found the cause of death, but the great majority of chances are that they will not be so satisfied. In this case they will open the thorax, examine the lungs, and the heart, and, as it is altogether likely will find nothing in this region that will assist in clearing up the mystery, the abdomen will be opened, and every organ in this locality subjected to the closest scrutiny, not forgetting to inspect the geneto-urinary region. There, the inquiring minds will rest their investigations. I forgot to say that if eye or ear symptoms existed, these organs and their cranial nerves would be carefully examined, but even this would be rather unusual.

When it is well-known that innumerable colds and their consequent effects, affect more or less every person over ten years of age, why is it that the region of these



manifestations is entirely ignored in every scrutinizing investigation concerning an unknown cause of death? This region, with its numerous connecting cavities, is located immediately under the brain, separated from it by a thin plate of bone, drawing its arterial supply from vessels that come from within the cranium, and intimately connected with the brain by the largest number of nerves that connect any two organs in the whole system. I ask, why is it that this region is wholly neglected in these investigations?

Rhinitis has always been considered of trifling importance; apparently too insignificant to deserve the attention of medical colleges, and of the general profession. I say, apparently too insignificant, because the facts are that almost every medical man has attempted, times without number, to treat this disease, and has utterly and ignominiously failed to perform the promised cure.

The medical colleges have not given that attention to this subject that is commensurate with its importance. In medical teaching of the past especially, and to a great extent of the present time, the lecturers are given to dealing with their subjects in generalities only. In this way a few professors are enabled to cover the whole field of medicine. While it is, of course, essential that the whole field of medicine should be gone over, to enable one to properly understand any one department of it, yet if the minutia of each department are not also given in detail, even a very good knowledge of the whole field will not enable the practitioner to be successful.

No one expects that medical colleges should give so thorough a medical education, that immediately upon a graduate receiving his diploma, he could fill the place of a gynecologist or an ophthalmologist, or that of any specialist, but their instructions in regard to rhinology is so slight as to lead every medical student to think it unworthy of consideration, and this low estimate of the subject is transmitted, as it were, to those who, otherwise,



are considered to be as thorough in studies as the subject demands.

As far as the study of this region of the body is concerned in medical colleges, not one physician in 5000 has seen the nasal cavities and the other cavities connected with them carefully dissected: not one in a thousand has made transverse sections of the head, exposing the ethmoidal and sphenoidal cavities and the antra of Highmore; not more than one in five-hundred has made more than a plain antero-posterior section of the head. The whole subject in a medical college does not occupy the attention of the whole faculty more than from *ten to fifteen hours* at most. What can be expected from such meagre instruction. Here is a disease that afflicts, to a more or less extent, nine-tenths of the human family. Nine-tenths of the professors and their families have been or are its victims, yet not more than fifteen hours are given to its consideration.

A few colleges have created a chair on nervous and mental diseases; these subjects will occupy its professor's attention for weeks, but the disease that originated a large portion of these complaints will not be mentioned.

The professor of the disease of the lungs will spend a week or more on this subject, but will scarcely mention the diseases of the nasal passages, that very frequently originate the disease that he is describing.

The professor of ophthalmology will be as reticent yet many of the diseases of the mucous membrane of the eye and not infrequently those of the retina, are due to nasal inflammation.

The professor of anatomy will dwell several days on the anatomy of the brain, but will not make an antero-posterior section or a lateral section of the head that will show the nasal cavities and the other cavities connected with them; yet the information imparted concerning the dorsal muscles, arteries, nerves, etc., will not be required for practical purposes, by one in a hundred of his class, whereas every one of the graduates will require an accurate



ate knowledge of the topography of the nasal passages.

The professor of surgery will occupy a month or more on the amputation of the shoulder and hip joints, on cutting for stone in the bladder, in describing the various steps for making an artificial anus, and for performing ovariectomy, operations that will not be performed by one in fifty of his class, but he will tell what he has to say on chronic nasal catarrh in two or three hours, or he may not mention the subject at all. If the victims of nasal catarrh were only half as numerous as those requiring these rare, and unusual operations, even then there would be no excuse for dismissing the subject so summarily as they do. But when the victims of rhinal disease far outnumber all those suffering from the injuries and the complaints for which the surgeon, the ophthalmologist, and the alienist are called upon for aid, then most assuredly time commensurate with their frequency should be given for their consideration.

The result of this almost universal ignorance is that thousands upon thousands of sufferers resort to nostrums. Right here is another fact that proves the general ignorance of the profession, that is, that even the effects of these nostrums are not always as irritating or injurious as the hap-hazard, violent treatments given by many well educated and honest physicians. Indeed so little satisfaction or relief do the laity get from the medical profession that the victims of catarrh depend mostly upon the advertisements seen in our daily prints and the almanacs for their information concerning this disease. These advertisements frequently describe the patient's feelings far better than the family physician, and really assist the patient to determine, more satisfactorily what he should do to better his condition, than anything he hears from his family physician. This being the case, the physician is set down as being illy informed, non-progressive, etc., by his once trusting patient. The fact that the symptoms of patients are so frequently accurately described by these advertisements, is the reason why the laity so uni-



versally apply to the advertisers for catarrhal remedies. These facts are not flattering to the profession, but they are true, nevertheless.

In closing these remarks, I will say that the treatment of all of my cases given in this chapter, will be found in **PART V**, where the treatment of detailed cases are given.



## PART IV.

### HYGIENIC AND SANATORY MEASURES.

#### INTRODUCTORY TO HYGIENIC AND SANATORY MEASURES FOR CHRONIC CATARRHAL INFLAMMATION OF THE NOSE, THROAT AND EARS.

The views I entertain concerning the relationship of the surface of the body to the mucous membrane of the superior portion of the respiratory tract—which have been given repeatedly in this work—were slow in developing. My first conceptions being very confused, not knowing where they would lead to, or what the out-come would be. The novelty of Dr. Matthews Troy's ideas—given in 304—which I read first in 1852; namely, that the sebaceous secretion of the integument has something to do in the production of tubercular deposits in the lungs, kept my attention on the subject for a number of years. Then the practical views of Dr. Jas. Y. Simpson, read in 1859—given in 307—maintained my attention still more strongly upon the relationship of the skin to that of the respiratory mucous membrane. I had, at that time, although in general practice, been treating cases of nasal catarrh since



1855, four years, and had treated one patient from the fall of 1855 to the fall of 1857 almost daily, leaving her in far worse condition than when I first commenced her treatment. It is needless to say that my mind was in condition to eagerly appropriate any information concerning the relief of congested mucous membrane, as well concerning the relationship of the outside surface of the body and the inside surface of the body. Although I had *Todd and Bowman's Physiological Anatomy*, of 1855, in my library for nearly two years, and had read and marked on the margin the word "important," opposite the following quotations taken from page 508, yet I did not fully grasp the subject.

"The sympathetic system, taken as a whole, is not in itself a special and independent nervous system, but a portion of the nervous system peculiar in its composition, having, as regards some of its constituent fibers, a special relation to blood vessels, particularly arteries (and there are the fibers which are independent of the cerebro-spinal centers, having distinct centers of their own,) but being by others of its fibers connected, as all other nerves are, with the cerebro-spinal centers.

"If we interrogate anatomy, we learn that the ramifications of this nerve [the sympathetic] are distributed to muscles as well as to EXTREMITY SURFACES. The heart, for instance, derives its principal supply of nerves from this source. The intestinal canal between the stomach and the lowest part of the colon receives no nerves direct from the cerebro-spinal system, and is therefore dependent solely on the sympathetic, for whatever of sensibility it enjoys, or for such motor power as may be usually called into action by nervous influence."

In the fall of 1873 I prepared a course of private lectures which were delivered to a number of medical gentlemen in this city. In one of these lectures I stated that "A 'cold' was due to a diseased condition of the sympathetic nerves and that these nerves were injured by injuries done to the surface of the body, through the agency of low temperature, tobacco, etc. As this was a new subject, and a new way of presenting it, I spoke very frequently to Dr. H. S. Leffingwell concerning it. Dr. L. was at that time associated with me in practice. I wrote to him some time ago and asked him if he remembered my



essions upon this subject at that time. The following copies of my letter and his reply:—

. H. S. Leffingwell.

Dear Doctor:—

I write to you to make an inquiry of you concerning the origin of an expression, "Paresis of the sympathetic" that originated— as far as I know—when we were associated with me. I stated that "A cold was due to a diseased condition of the sympathetic." You stated that "Paresis of the Sympathetic" was a preferable expression, which I accepted and have used ever since. It occurred in one of my lectures. Please state whether or not you recollect this as I now state it.

Yours Respt.

T. F. R."

The following is Dr. Leffingwell's reply:—  
Waukegan, Wis., March 3, 1886.

Dr. Rumbold.

Dear Doctor:—

The origin of the expression 'Paresis of the Sympathetic' was owing to the idea, which I still entertain, that all varieties of inflammation are grades of paralysis of action; of course affecting the sympathetic or ganglionic nerves and those of the cerebro-spinal system that may accompany and influence their action.

I recall the occurrence, as you have stated, and believe it was during the winter of 1873 and 74.

Respt.

H. S. Leffingwell."

My conviction, that all "colds" are due to a 'Paresis of the Sympathetic,' was so strongly grounded that it led me to persistently insist upon my patients' living in accordance to hygienic rules. All who know me, know that I have, since 1866, advocated the paramount importance of hygiene to my patients. I have done this so uniformly to every patient, that many physicians as well as patients regard it as my "hobby." If I have hobbies in medicine and I believe I have—this is certainly one of them.



In the early part of 1878 Dr. Charles T. Reber, of Shelbyville, Ill., read to me a very interesting paper—which he afterward published in book form—on “Paresis of the Sympathetic.”

With this preparation of mind it only required the reading of an article on “Reflex Action as a Cause of Disease and as a Means of Cure,” by Dr. T. Lander Brunton of London, 1878, (329) to make the whole subject perfectly plain to my mind. Namely:—That an impression may be made upon the surface of the body and so affect the sensory nerves as to produce motion of the involuntary muscles surrounding the arteries and thus affect the nutrition of the parts supplied.

Such being my views I was compelled in justice to my patients to insist upon their observing the laws of hygiene. Nor could I rest here, I was compelled to carry this belief into everything I did in way of local treatment of the nasal mucous membrane. As my views compelled me to ask my patients that they should desist from irritating their mucous membrane by further exposures; these same views also called for a perfectly non-irritating plan of local treatment. It would be inconsistent to discontinue irritating the sensory nerves of the surface of the body and immediately afterward irritate the sensory nerves of the mucous membrane by local applications.

In the first article that I wrote on “CHRONIC RHINITIS” in *The St. Louis Medical Reporter*, in Aug. 1869, I made special mention of the fact that patients could not expect a permanent cure if they did not take proper care of themselves. In this paper I gave a number of rules that should be observed, and stated that recovery depended upon the obedience of these rules; showing, that at that time I insisted upon patients discontinuing their irritating mode of life, although I had not then learned that complete non-irritation, as regards local therapeutic measures, was equally essential to a successful practice.

**Importance of Hygienic Measures.** Chronic catarrhal inflammation of the mucous membrane of the naso



passages and the cavities connected with them, requires a different management from that given to other diseases, for the reason that the effects of the dress, customs and daily habits of patients have a controlling influence both production and prevention of the complaint.

In the early part of 1868, I treated a number of patients for larval inflammation of the throat and nasal passages. They were in the habit of frequenting a skating-rink from two to four nights each week. After exercising violently they became exhausted, and seated themselves on a bench in the cold air, thus becoming chilled. I was partially successful in the treatment of their catarrhal complaint, being unable to do more than alleviate their most prominent symptoms, and these only temporarily. These circumstances led me to consult a record I had kept of the history and treatment of a few obdurate patients who had, at different times during the five years previous, been under my cure for the same complaint. These last named patients had noted many of their symptoms and had taken special pains to maintain their general health.

I made a record of these cases at different times, but had not, till on this occasion, read them through in succession. After a careful study and comparison one with another I was struck with the remarkable similarity of their statements regarding the causes they ascribed to the aggravation of their catarrhal complaint. The similarity did not lie here but included the cure that experience had taught them to use of themselves; the amount as well as the kind of clothing that proved sufficiently protective and the best means they found to relieve fresh attack of cold in the head and throat.

The reading of this record profoundly impressed me with the paramount importance of the observance of hygienic laws in the management of this disease. The humiliating fact that I had failed, here and again since 1855 (the date of my first systematic attempts to treat this complaint according to our text books), to do more than to afford a little relief, proved to me that some very important matter in the management of this disease had been overlooked. Indeed, I had overlooked the records spoken of, because of this impression. Under these circumstances, as I reflected on the effects of colds upon the mucous membrane, repeated year after year, and re-called to mind remarks from a large number of other patients had made on this same subject, I became more thoroughly convinced that I had found what had been overlooked by all who had preceded me, namely: that a strict observance of the laws of health was indispensable to a successful treatment, as well as to the prevention of the renewal of the cause of the



inflammation, namely, colds. It was not difficult now to see why I had failed in the "skating-rink cases."

Since that time I have made it a point to require my patients to strictly observe the laws of hygiene. If they do not do so, I discontinue the treatment at once.

**The results of Excesses and Exposures.** In 1868 I made a series of observations concerning the causes of sickness and death among men and women between the ages of 20 and 40 years. I soon found that most of the ailments and deaths of men arose from the results of excesses of various kinds, and the chief of those were the use of tobacco and stimulants. In the case of the women, their sickness and death arose from the result of exposures of various kinds, but principally owing to insufficient clothing.

While this is far from being complimentary to man's strength of mind to control his appetites, it is as far from being flattering to a woman's judgement of her own endurance or ability to resist the injurious effects of inclement weather. One is an evidence of a determination not to be deprived of any pleasure at whatever cost, and the other denotes either a great state of ignorance or an indifference to a very common cause of disease and death.

Every physician who expects to treat chronic catarrhal disease of the nasal passages successfully, must keep in mind the proneness of male patients to commit excesses and the certainty that almost every female patient is insufficiently and imperfectly clad.

**It is essential to recovery that patients take care not to aggravate the disease by colds.** Patients suffering from any kind of disease should so assist their physicians as to insure as speedy and permanent recovery as possible; but with those suffering from catarrhal inflammation of the nose, throat or ears, this assistance is absolutely indispensable; a recovery without it being impossible. A majority of these patients appreciate this, when the subject is first presented, but the most of them are ignorant of many of the details of the laws of health, or they do not consider them of sufficient importance to give them strict attention. For this reason each patient should, on his first visit, receive instructions on such hygienic laws and sanative measures as are suited to his particular case.

**The subjects upon which patients should receive instructions.** These instructions should refer to the following points of conduct; viz: The importance of avoiding any exposures liable to produce a cold; the best method of protecting the head, neck, body and extremities; the danger of exposure to night air; the course to pursue when a cold has been taken; the proper temperature and ventilation of the sleeping room; the kind of food that should



be used; physical **exercise** and the time it may be taken; the injury resulting from not controlling a gloomy mind and an **irritable disposition**; the danger arising from **cold feet** and the way to maintain them warm if they are habitually cold; the necessity of maintaining the nasal and aural passages **free of catarrhal secretion**, and the most effective and non-irritating means to be employed; the kind of **bath** that may be used and the manner and time in which to use it; the necessity of abstaining from the use of **tobacco and stimulants**; the importance of having diseased **gums** and decayed **teeth** properly treated by a dentist, and any other hygienic and sanative measure that will tend to regain and preserve health. It will seldom happen that any one patient will need to be instructed in all of these matters, but the greater portion of them must be given to every patient.

As it would consume much valuable time to give new patients advice concerning these twelve to fifteen subjects, I give my patients a copy of a small work that I have published on "THE HYGIENE OF CATARRH." This book contains these instructions in full and from it he can, as occasion requires, review such parts as he may have forgotten. On the first page I note, in ink, the pages of the book that contain the subjects most important to him, which he is directed to read carefully and frequently so he may remember the numerous conditions that are essential to his recovery.

**A patient cannot recover if he disregards any one of these hygienic measures.** The successful treatment of chronic catarrhal inflammation of the superior portion of the respiratory tract may be likened to the successful suspension of a chain. If any one link is broken the chain drops. So with the treatment of this disease. It may be said that one link of the chain is called protection of the head, neck, body and extremities; another link, danger of draughts and night air; another, injury resulting from not controlling an irritable disposition and a gloomy mind; another abstinence from the use of tobacco and stimulants; and so on through the whole list of hygienic and sanative measures. Two other links belong to this chain; namely, therapeutic and operative measures. If any one of these links is broken, it matters not which one it is, the chain is broken and falls, and the attempt to bring about a recovery is unsuccessful, whether it be the patient's or the physician's fault.

My experience leads me to affirm positively that unless patients take such care of themselves, by proper attention to their dress, habits and daily customs, as will lessen to a great degree the severity of recurrent colds, the disease cannot be controlled by either a local or constitutional treatment, or by both. It is only during the observance of hygienic and sanative measures that therapeutic measures are successfully employed.

It should not be expected that a chronic disease, originating sole-



ly from repeated violation of the laws of health, can even be alleviated while the patient continues to violate these laws.

**The catarrhal condition establishes a susceptibility to colds.** It is a characteristic of chronic nasal catarrh to establish a susceptibility to renewed attacks of cold in the head. That is past colds have so weakened the mucous membrane, that it becomes inflamed on the patient being but slightly exposed, while at an earlier stage of the complaint, or when it was still in the acute form, this exposure would not have produced an injurious effect. In the still more chronic stages, the patient will often realize this important but very unpleasant fact.

Past experience proves that in the treatment of patients who have been afflicted so long as to acquire this character of susceptibility, the dependence upon medicines alone must result in failure, as it is evident they cannot ward off colds. This is to be done by conforming to rules pertaining to the general health. But it is equally evident, that the observance of these rules cannot give immediate relief to an irritation caused by morbid secretion, or to a pain occasioned by a local congestion; this relief must be the result of both local and constitutional treatment.

**Therapeutic and operative measures also, as well as time, required for recovery.** Such therapeutic and operative measures must be instituted as will prevent the continuance of the diseased action already set up. If the therapeutic measures are non-irritating and alleviating, and the patient lives in conformity to hygienic principles, the reparative processes of nature will in a longer or shorter period of time, according to the age and temperament of the patient, restore the inflamed membrane to its normal condition, or to such a condition that the patient will not be conscious of the existence of the disease.

Of course it would be preposterous to think that this restoration could be effected in a few weeks or even in a few months, except in young persons. The changes in the mucous membrane, the result of long standing inflammation, are too great for a cure, to be effected in so short a time. Time was required for the congestion to produce the disease, and time will be required for the reparative processes of nature to undo or eradicate it, that is, proper care, non-irritative therapeutic measures and time will do it. For this reason, the strict observance of hygienic measures must not cease with the termination of medical treatment, but must be continued for several years, or so long as there is a susceptibility to take cold. Some patients complain of the severity of this—what they call—rigid mode of



Can any man or woman give a good reason for not living continually in conformity to well known and easily obeyed laws of health.

**Hygienic measures the most important in the cure of chronic nasal catarrh.** From the foregoing it will be readily perceived that according to my views, the observance of hygienic measures is of far greater importance to the successful issue of a case than are therapeutic measures. From close and careful observation extending back to 1862. I am satisfied that more can be done for these sufferers—including all ages—by the proper observance of hygienic measures alone, than can be cured by therapeutic measures alone, especially if the latter causes the least irritation. I say this to show the high estimation I put on the value of the proper observance of the laws of health.



## SECTION I.

### Hygienic Measures.

Until it shall be generally conceded, that every individual who has suffered from frequent attacks of cold in the head, has catarrh of a more or less severe form and of a more or less chronic nature, the importance of *preventing* colds will not be given due weight. While almost every person will freely acknowledge that they not only frequently take cold, but almost constantly do so, yet not one in a hundred will admit for a moment that they are afflicted with catarrh of the nasal passages, and are horrified at the suggestion.



## CHAPTER I.

**COLDS :—THEIR COURSE ; EFFECTS, TREATMENT, ETC.**

**1457. The Cause of Colds.** In many respects a cold contracted by a healthy individual, is like a fire kindled in a wooden building. In the beginning, both the fire from the match and the cold affecting the patient are small, as both can be controlled with but little exertion; a small quantity of water proving sufficient to extinguish the fire, and a little attention to terminate the cold. But if the fire is allowed to progress unchecked, a bucketful of water will be necessary to accomplish what might have been done by a teaspoonful, and even if the bucketful is dashed upon the flames, *at the right time*, the fire will not have gained such headway as to result in the utter destruction of the house. So with a cold. If proper hygienic measures, and, may be, a very little medication be promptly resorted to at its inception, it can be readily controlled with but little inconvenience to the patient, while if neglected at this stage, its ill effects, probably, will steadily increase, until magnified into weeks, perhaps months of suffering, possibly ending in death.

The early history of every case shows that chronic catarrhal inflammation of the superior portion of the respiratory tract, has its origin in colds in the head; also the growth of the inflammation is almost imperceptible.

The first cold causes so slight an inconvenience, as to be scarcely noticeable, while each succeeding attack is the more severe, of longer continuance, and occurs at shorter intervals, until the intervals between them



are obliterated altogether, a fresh cold being contracted before the previous one has entirely disappeared. At this stage of the disease, the membrane in many cases is so sensitive that the slightest draught of air, or even a fall of the barometer, will suffice to occasion an attack so severe as to involve the entire respiratory tract. While a great deal of exposure was necessary to produce the earlier colds, as the disease grows in severity, each succeeding one is contracted more easily, until the patient is unable to ascribe a cause for the last attack, but fully realizes he is in the power of the disease.

**1458. The Apparent Effects of Cold.** The immediate result of every cold is enlargement of the blood-vessels in the part affected, as fully stated in topics 232 to 244. If the cold continues for several days, or is allowed to pass off slowly, the muscular coat, surrounding the blood-vessels, will have lost some of its contractile power, and the vessels will remain enlarged. When the irritation which caused the congestion, is removed, the vessels will be more liable, because of their atonic condition, to become affected on taking the next cold; and if the next cold is contracted before the blood-vessels have entirely recovered from the dilating effect of the preceding cold it will produce a congestion still greater than the former cold, causing a consequent still greater dilation of the vessels, leaving them still enlarged, more weakened and relaxed, when this cold has passed off.

**1459. The way that Chronic Catarrh is Contracted.** Each successive cold prepares the sufferer to take cold more easily, and more severely. Every person who is a victim of a chronic catarrhal inflammation, has acquired this inflammation in this, and no other way. It is the only way in which the disease can originate.

Every person should bear in mind that while a cold is slowly "wearing off" as it is called, the chronic catarrhal inflammation is slowly increasing or growing worse. This shows that it is very important that colds should be cured as quickly as possible. It also as plainly shows that it is of the utmost importance to prevent the renewal of colds by the proper observance of hygienic rules.

Patients may not be able to entirely prevent the recurrence of colds in the head, but they can render successful treatment of the disease possible, by diminishing the frequency of the attacks, this will have the effect of diminishing their severity. If such precautions be taken, the inflammation will extend to other portions of the respira-



tract, or to the auditory organs in defiance of all therapeutic measures that can be instituted.

The importance of attention to hygienic measures gains weight when it is known that with the young, the inflamed membrane, affected from repeated attacks, will gradually regain its healthy condition. In other words, if young patients could be so protected that they would not take another cold, they would slowly recover with but little or no medical aid.

In all cases, under the combined influence of hygienic and therapeutic measures, the mucous membrane generally loses its extreme irritability to take cold, and the prominent and urgent symptoms of the complaint gradually disappear.

**460. Colds Incurred from Draughts, Night Air and by Acts of Commission and Omission.** Most persons know from experience that while they are in an over-heated condition, it is easy to expose the head, neck and shoulders, or any limited portion of the body, to a current of cold air. Many refuse to bear patiently the temporary discomfort of an over-heating, and to obtain relief, to ascend at an open window, thereby taking a cold, which, in the most common cases, will last double as many days as the discomfort from the heating would have lasted half hours; and in many instances a cold contracted in this way, proves to be so serious in its results as to affect the health of the victim during the remainder of his life, even if it does not shorten life itself.

Exposure to night air should be avoided if possible. If compelled to be out at such times, more clothing should be placed around the head and chest than is worn during the day. It would be well for the patient who must so expose themselves, during cold or damp weather, to draw on over their shoes, a pair of thick woolen stockings, thick enough to reach to the knees.

Sitting for three or four hours in a hot theater or lecture-room, where the air is impure, succeeded by a ride in the street car or an omnibus or a carriage ten or twelve squares—equal to an exposure of half an hour—is sure to be followed by an increase of all catarrhal symptoms. If precautions are taken to ward off a cold, by placing extra protection on the head, around the neck and on the lower extremities, in addition it would be well to protect the hands and wrists in cold weather, the former by woolen mitts the latter by woolen wristlets or warmers, as they are popularly called.

**461. Petty Acts of Carelessness.** There are many petty acts of commission and omission, the result of forgetfulness, or more frequently of carelessness, which almost surely originate a cold. The most conspicuous of which are, sitting on a stone door-step in a cool



evening to a late hour at night; sitting up late after the fire has gone out, then going to bed with cold feet; getting out of bed with bare feet and in night dress to wait on a child sleeping in a cold room; making the fire on a cold morning in an undressed condition; standing in an open doorway during cold or damp weather with the head and shoulders insufficiently protected, to speak a few words to a friend who is too slow in taking his or her departure; stopping to speak to a friend on the sidewalk, long enough for the feet to become cold, and to experience a chilly sensation between the shoulders; making a call on a friend who receives company in a cold parlor, or in one in which the fire is started on entrance; receiving lessons or giving lessons on a piano in a cold room; seeing a friend to the gate and standing there until warned of the impropriety of the act by a sneeze, or "cold streaks" going up and down the back.

#### 1462. How to Take a Cold.

Letting school children play during recess without their heads being properly covered.

Sitting in a barber shop in your shirt sleeves while waiting for "your next."

Putting on a pair of light thin shoes on a damp evening, when you come on a young lady.

Failing to change your shoes and stockings after coming home from a walk on a rainy evening.

Sitting in a car near an open window on a cool day.

Sending little girls out, in the fall or early spring, to play in short stockings, and skimpy skirts.

Going down to breakfast, through cold halls, without a wrap, on a cold morning before the fires have been well started.

If you have a bald head, refusing to wear a wig or cap.

Going the Opera in full dress, or sitting with your back to one of the side doors.

Taking a long bicycle ride, then standing by the side of your machine for half an hour describing it.

Going out into the lobby, during an interval in the singing of Wabasso Musical Union, and promenade without your overcoat.

Leaving off your heavy under clothing on mild April and October days.

Having your hair cut short and shampooed every two weeks, especially fall and spring.

Wetting your head every morning in cold water.

Taking a hot bath in the evening and sitting up in your room, trying to finish the last two dozen pages of an exciting novel.

Running a square to catch a street car, and taking off your hat for a moment to cool off when you catch it.

Taking a hot drink before going out into the damp air.

Coming out of the hall or near an entry after dancing for half an hour.

Wearing summer hose through October and November.



... your rough overcoat when you go driving, and wear your thin one to look well.

Going to an evening party in a dress suit without putting on heavy underwear to compensate for the lightness of the cloth.

Doing up your back hair high when you have been accustomed to wear low, and going out on a windy day.

**1463. Colds Taken in the Cars.** In these days when travel by railroad is so very common, a few words to the patients on the best means to prevent taking colds in the cars will be useful.

For men, a light cap, one that will come over the ears, so as to serve as a night-cap will be desirable. In cold weather a woollen cap is best. This cap should be put on as soon as the car is entered. A loose blouse should take the place of the coat usually worn. Slippers must not be worn. If there is a draught in the car, face it, do not let it strike the back.

Have the bed made with its head toward the engine; the dust will then be driven to the foot, where it will do the least harm. Be sure to have a sufficient quantity of bed clothes to keep warm.

A soft, loose knit, woollen hood is the best head wear for women; this should be worn at night also. It should be warmer in winter than in summer months. The corsets should be removed at night and a loose woollen wrapper worn for a night dress. The stocking supporters as well as every contracting band around the waist should be loosened.

Every adult should take from five to ten grains of quinine on going to bed. It will be well to rub the hands, feet, face and neck with a little vaseline at the same time.

**1464. Drive Away a Cold.** A cold should be driven away as soon as possible. It should not be allowed "to go off itself" as it is usually expressed. While a cold remains, the mucous membrane is taking on chronic inflammation. No one can become affected by chronic catarrhal inflammation, except by neglecting their colds, that is, by allowing them to "wear off." While the cold "wearing off" the chronic catarrhal disease is *wearing* so to speak.

Many persons say, "I do not know how I got this catarrh," or will ask such question as: "What is the cause of catarrh? Is it dust, or the smoke? Is it due to the climate; its being variable?" No, neither. If it was either, then as all are exposed



to it, all would be equally affected. In answer to the question, "Do you take cold easily and frequently?" They reply in the affirmative. In answer to the question, "Do you do anything for your cold?" They will say, "No, I do not." If these persons had driven off every cold they would not have been the victims of catarrh. This disease must be contracted except through the result of carelessness; the victims having been for a long time indifferent to exposures that result in taking cold, and allowing each of their numerous colds to "wear off" and thus compelled the chronic catarrh to "wear on."

Even when patients have been successfully treated and have remained in good health for several years, a slight cold, if allowed to slowly pass away, will again prepare the mucous membrane to take another but more severe cold. A continuation of this neglect will eventuate in the return of the catarrhal inflammation, not only to its original severity, but in time, to a far more severe form.

On the other hand, if each cold is checked quickly, then whatever effects it has produced, are as quickly removed by the healing tendency of nature. Under these circumstances there is less liability for the patient to take cold, and should a cold be taken, it will produce less serious results.

**1465. Treatment of a Cold.** The first manifestations of a cold are usually observed in the evening. Even if these symptoms are slight, the patient should be instructed to regard them as very important. At this stage of the disease a ten-grain dose of quinine taken on going to bed and five grains taken the next morning, will usually be sufficient to cure the cold. A laxative pill should be prescribed if the bowels are in a constipated condition.

This course may be required to be repeated for one or two evenings and mornings, but in the majority of instances, especially if the patient is under treatment for his catarrhal complaint, one, or at most three courses are all that are required.

If the cold is so severe that it will require a third course, it will be well for the patient to bathe his feet at bed time, as will be described in topic 1504. If the cold has been allowed to progress for four or more days, then a different course of treatment will have to be instituted, which can only be indicated by the patient's condition at



the time, as the complications will, under these circumstances, have become too numerous to be mentioned here.

**1466. Vaseline on the Face.** No one who has applied vaseline on the face, and has rubbed it well on the nose for a cold, will say that the fashion of our grandmother's in anointing our noses was notional, only. Almost immediately after the application, a sensation of relief is experienced in the nostrils. It is not only beneficial to children but also to adults.

If the ears are unpleasantly affected by cold air, apply vaseline to them also.

## CHAPTER II.

### THE HEAD ; ITS PROTECTION DURING THE DAY AND NIGHT.

#### **1467. Protecting the Head During the Daytime.**

The hat usually worn by men and boys during the day is a sufficient protection to the head against inclement weather. It is to be greatly regretted that women, as a class, do not wear hats equally as protective. The covering for the head, that they wear, even in severe weather, is generally made to conform to fashion, in utter disregard to comfort and to the detriment of health.

**1468.** A fashionable, twenty-five dollar tall hat, perched on the upper and rear portion of the head of a female patient, whose ears are so sensitive as to require to be filled with cotton, whose mouth must be open to allow respiration, whose nose requires the frequent application of a handkerchief, whose cough is the harbinger of her approach, and whose hollow cheeks and weak voice indicate that catarrhal disease is making rapid inroad upon her system, may be fashionable and stylish, but it certainly is not conducive to health. Persistence in follow-



ing the demands of fashion in this particular, as in other matters of dress, is constantly affording an opportunity for the inception and progress of catarrhal disease. The fashionable hat of the present day, is placed on the head in such a manner as to afford practically no protection, the cold wind has a fair sweep between the top of the head and the under portion of the hat.

No style of bonnet that I have seen during the past few years, can give the requisite protection on a blustery, cold day, to the ears and neck of a catarrhal patient.

**1469. Hoods.** In the winter of 1869, I saw a few ladies who had the good sense, as well as the good taste, to wear a black or brown velvet hood. This hood was quilted—not heavily—and was so formed as to cover the whole of the head, and back and sides of the neck. A band of brown fur bordered its front, side and back, which while not adding to the warmth, enhanced its beauty. This affords ample protection from the cold winds that usually prevail during our fall, winter and spring months.

**1470. Nubia for the Head.** A nubia may be so wrapped around the head, ears and neck as to protect the wearer nearly as well as a hood. It should be so wrapped over the head and under the chin from one to three times, and several times around the neck, according to the severity of the weather. With this protection, if the remainder of the body is proportionately as well dressed, a few hour's walk or ride in a sharp, frosty atmosphere, will not only be invigorating, but enjoyable.

**1471. A Light Cap or Wig to Protect Baldness.**

A patient who is bald or whose head is but thinly covered by hair, is very liable to take cold even in warm weather. The scalp being uncovered, allows a rapid evaporation of the perspiration and consequent loss of heat: this frequently results in maintaining a continuous cold. To prevent this he should wear a light cap or what is much better a wig. Either of which can be made to protect the head nearly as well as the natural hair.



## THE HEAD.

**1472. Night Caps.** A covering or cap for the head during the hours of sleep, is as essential for comfort and protection as are bedclothes for the body. That a strong, hearty individual may not require the protection of a nightcap is admitted; but it does not follow that a catarrhal patient, whose liability to take cold is the bane of his life, should not protect his or her head in this way, any more than it follows that the sick should refuse to take medicine, because those who are in good health, not only do not need it, but would be injured by it.

I have asked many patients their reasons for not wearing a night-cap, as they claim, with much earnestness, to have been watchful of every source from which they might have taken cold, and to have used every precaution to prevent one. Some replied that they had not taken the matter into consideration; others, that they did not think it necessary, as the protection of their room was sufficient to prevent their taking cold; while still others answered that they had been told that it would render them more liable to take cold on rising in the morning. The conclusion to be drawn from the last answer is, that protection should not be given to the weak, because excess of covering has a weakening effect upon the strong.

**1473. Protection of the Head in Childhood.** Every infant up to its eighteenth month, should in all seasons of the year, have its head protected by a light cap during the day, and a heavier one during the night; and every child, up to its tenth year, should wear a night-cap during the fall, winter and spring months. Nine tenths of the earaches and attacks of croup and sore throat, grow out of the neglect of this very simple precaution. The dangers of an earache are very frequently underrated. "In course the earache is a painful complaint, but children outgrow it, they always do." Such expressions are uttered by those persons who do not know that four-fifths of the deaf mutes have lost their hearing from earache during childhood. Every earache is preceded by a cold.



**1474 The Hair.** Nature's effort to make the hair a means of protection to the head, should not be thwarted by the use of the scissors. The hair should not be cut so short that it can scarcely be parted. This is an undue exposure of the head. Male patients very frequently commit this grave error. Females almost universally go to the other extreme. They wear their hair of such length, that its massive coils become a burden and a frequent cause of severe headache. The practice of cutting the hair very short or of wearing it very long, should be discontinued, it is a flagrant violation of the laws of health.

**1475. Shampooing.** This is injurious to the scalp and hair. It removes every particle of oil from the head, causing the scalp to become dry and full of dandruff, the hair to lose its glossiness and natural color, generally giving it a faded and lighter appearance. But worse than this, because of the absence of the oil, which is an excellent non-conductor of heat, the patient is more liable to take cold, on even a slight exposure of the head to a draught of cool air.

The application of oil to the head is very beneficial to the scalp and hair. It should be well rubbed on about once a week, oftener if the hair has a tendency to become dry. This practice will lessen the liability to colds after head washings and hair cuttings. Plain white vaseline is the best oleaginous substance that can be applied to the head. It does not become rancid and has a cooling and healthful effect upon the scalp.

**1476. Baldness.** About 20 per cent. of men are bald, or are in a stage of partial baldness. I have observed this in churches, theaters, etc. Why are men more bald than women? It cannot be on account of the kind of hat or cap that is worn; I know of scores of men who do not wear a hat nearly as much as many women do.

It cannot be on account of cutting the hair; I know a large number of women who cut their hair every month.



and keep it short as many men do. In what other matter does the care of the hair differ? Not in the mode of living; not in hot rooms; not in the food taken, but only in the matter of **washing the hair**. "Oh, I must wash my head once or twice a week." May not this excessive washing tell the story? The operation called the "shampoo" is, in my opinion too frequently performed. This consists in the use of ammonia, soap, etc., to remove every particle of the secretion thrown out by the glandular bodies that surround the hair, secretion that the hair *must* have to remain in a healthy condition.

I have known men who wash their hair *regularly every* morning, for years, with alcohol, after using soap and ammonia. The result was a continual cold and thinning of the hair.

Of late years women are taking to the "shampoo." As soon as they equal men in the frequency of this hair destroying practice, we will have an equal number of bald women.

The head may be washed once a month or six weeks, during the warm months, in tepid rain water; this will clean it sufficiently. A good hog-hair brush, and an India rubber comb will keep the hair clean enough for health, during the winter months.

1477. A scalp that sheds dandruff may be thoroughly cleansed by rubbing it well, once in three weeks, with an drachm of white vaseline, and rubbing with a towel. No colds are taken.



## CHAPTER III.

### THE NECK ; ITS PROTECTION.

**1478. Furs.** The fur neck-wraps worn by men and the fur tippets and capes worn by women are very injurious. They are so close that they excite perspiration of the parts covered, while other parts of the body may be cold. Because of this extreme contrast, the wearer is almost certain to take cold in the throat and head as soon as they are removed. All wrapping of these parts by furs tends to increase the congestion of the mucous membrane by their excessive warmth even if the patient did not take cold on their removal. Light, loosely woven woolen wraps are preferable, and are necessary during cold weather, for both male and female patients. If these do not keep the neck and upper portion of the chest warm enough, an additional woolen under vest should be worn.

**1479.** Some persons believe that the habit of protecting a diseased throat with any kind of a wrap, will increase the tendency to take cold. This grave error is made by those who have observed the bad effects of covering the neck with fur wraps. It is an undisputed fact that a healthy person can bear more exposure to inclement weather than a catarrhal patient can encounter with safety. But this is not a good argument to prove that a weak throat should not be protected. As well might the



an refuse to take medicine because his robust  
r does not need it and would be injured by it.

**O. Shirt Collars.** Constriction of the neck  
be avoided. I have frequently had patients who  
ned of a sense of dizziness on the inclination of  
d toward either shoulder. With a respectable min-

them, it was ascertained that this unpleasantness  
asioned solely by a constriction of the neck, by a  
r shirt band. I have often observed the collar fit  
ly, it was with difficulty a finger could be inserted  
it and the neck. A constriction even of a less  
han this, will prevent a free circulation of the  
n the head, and will not only sustain but aggravate  
gestion existing in the mucous membrane, or other

Shirt collars and shirt bands should fit the neck  
ly that the four fingers of both hands can be in-  
between them and the neck.

**H. Low-necked Dresses.** It is quite question-  
ether a low-necked dress can be worn without in-  
it of course no lady who is liable to suffer from  
ould be so forgetful of the laws of hygiene as to  
low-necked dress on any occasion, or in any  
of the year. Besides this, it is an immodesty  
parently invites familiar inspection, as it exposes  
might very properly say, organs—that should  
given to public gaze.



## CHAPTER IV.

### THE BODY; ITS PROTECTION.

**1482.** Patients cannot at all times control the temperature of the atmosphere surrounding them, but if they protect the body with the proper kind and amount of clothing, a low temperature, instead of being a detriment, will prove to be the most favorable condition for the promotion of mental as well as physical vigor. Patients enjoying even tolerably good health, having no symptoms of disease, except those occasioned by their catarrhal affection, need not discontinue their daily occupations, even if, during the cold and damp seasons they are exposed to sudden and great changes of temperature, but they should take great care that their bodies are well protected by clothing.

**1483.** During our cold seasons, the air within our dwellings is warmer than without. It is impossible to avoid the change from one to the other. In order that no injury may result from the sudden transition to the colder atmosphere, an additional suit of under-clothing should be put on before leaving the sleeping-room, beside the usual number of outer garments worn, and in very cold weather an extra amount of over-clothing should be added before going out of doors. It is astonishing how great a



ber there is who neglect to take this precaution. If of these persons, if spoken to on the subject, will emphatically say, "I wear a large and thick chest protector!" Now, even the largest of these so-called protectors cover the front portion of the lungs, leaving the stomach, the back and sides of the body, as well as the upper and lower extremities, insufficiently covered.

**1484. Deficient amount of clothing, colds, and chronic catarrh of the superior portion of the respiratory system, bear the relation to each other of cause and effect.** We could have no colds without some defect in the covering of the body; we could have no chronic nasal catarrh without a frequent repetition of colds; therefore the maintenance of the whole body in a warm, equal temperature is of the greatest importance, and no effort on the part of the patient that will affect this, should be neglected.

**1485. Reasons for Protection.** The fact that patients acquire a susceptibility to take cold on the least exposure, plainly indicates that they should protect themselves by wearing additional clothing until such liability no longer exists. This advice is especially applicable to delicate patients, from the fact that while in an enfeebled condition, taking cold more easily because of their catarrhal complaint, they continue to follow the customs of the sex, in clothing themselves with a kind and form of dress that is imperfectly adapted to the retention of the heat of the body, consequently they suffer from the injurious effects of sudden changes of temperature.

A lady, whose garments below the waist consist chiefly of loose skirts, in passing a corner of a street on a winter's day, is thoroughly chilled, the warmth of her body being almost instantly blown away from the skirts. It is barely possible that a strong woman can endure such exposure with impunity, but there exist no doubt respecting a catarrhal patient being injured by it.

**1486. The Difference in the Clothing worn by the Men and Women.** One of the most remarkable facts connected with



dress in general, is the difference between the form and amount of clothing usually worn by women and the amount and form worn by men, as compared with the strength or power of resistance in the sexes. If the lighter garments were placed on the body of the sex possessing the greater strength or power of resistance to inclement atmospheric influences, there would seem nothing remarkable about it; but these conditions are reversed, the weaker sex wear not only the less amount of clothing, but that form of it which affords the least protection.

Most women are conscious that they, as a class, do not possess the bodily strength to resist the effects of inclement weather that men do, yet not withstanding this, they clothe themselves with such light material, which enwraps their bodies in so loose a manner, that they receive not more than one-third, or at most one-half the protection from their garments that men do from theirs. I am certain that if the strongest man were to clothe himself in the same form and kind of garments that women do, he would soon suffer from some form of sickness originating from the exposure.

Although every weak, illy-clad woman will readily admit this, yet it would require quite as great an effort to induce her to put on a sufficient amount of the right kind of clothing, as it would to persuade an old tobacco smoker or chewer to give up "the weed." The exclamations and protestations of my patients on this subject are so nearly alike, it would seem as if they had agreed, in convention, to repeat the same words. On being informed what amount of clothing they should put on, in addition to their usual number of garments, they say: "Oh, I can't wear two, three or four suits of under-clothing, it would kill me to carry such a load. I tell you I can't do it. I would do almost anything to get rid of this horrid cough and headache, but I can't wear that number of suits. Why, it would kill me outright! and I might as well die one way as the other! and besides how would I look! I'd have no shape; I'd be as broad as I'm long; I have not a single dress I could wear, every one of them would be too small!"

**1487. Promising Patients.** There are a few patients who cannot be persuaded to clothe themselves properly, and, that they may continue under medical treatment, will make promises—which will be repeated as often as the subject is mentioned—to take the utmost care to avoid exposure to night air, draughts, etc. Other than an unfavorable result need not be expected from the treatment of such patients. In the majority of instances these promises are not kept, partly because of their inability to do so, being prevented by unforeseen circumstances, but many times on account of inattention, a habit of some year's growth in these patients. However, such unreasonableness is not usual, the very large majority, although protesting when the sub



ject is first mentioned, they do put on the requisite number of suits, and having worn them a few weeks, expressed themselves as pleased with the additional warmth. The beneficial effects are so plainly manifested, that they become convinced of the great importance of clothing themselves warmly, and for this reason they do not forget or neglect to put on the suits each succeeding fall and wear them during the whole winter.

**1488. Under-clothing.** Persons of both sexes and all ages, should wear in all seasons the fine knit drawers and vest usually found in furnishing stores. These garments are made of a material consisting of about one-third wool and two-third cotton. This proportion of cotton to wool is more pleasant to the wearer than either all cotton or all wool goods; the all cotton garments produces a cold sensation at such times as the body is covered with perspiration, while the all woolen garments do not absorb the moisture as completely as cotton does.

When the weather becomes cold in the fall, a heavier suit should be put on over the thin stockinet suit, already on the body. When the mercury has fallen as low as 13° F., lady patients should put on a third suit as heavy as the second; and if they are to go on a journey in the railroad cars, or are otherwise to be exposed for several hours, during the coldest winter months, a fourth suit should be donned.

These supplemental suits should be made of pure wool, cut and sewed from blue, yellow, white or grey flannel.

I have purposely omitted to mention red flanne, as it is many times the poorest and shrinks the most.

Many of my lady patients who were confident they could not endure this weight of extra clothing, were astonished to learn that these four suits weigh less, by nearly half, than a fashionable walking dress, and that the first three suits weigh less than the flannel skirts usually worn in cold weather, and also less than their felt and cotton skirts. Doubtless these patients would feel less encumbered wearing heavy skirts suspended from the waist or shoulders, than in wearing the three suits, as their limbs would then be left freer, being less wrapped. But the



wearing of the heavy skirts is too loose and open a mode of dress, and when they are put upon the scales, weigh double as much as the material in the suits, while affording less than half the protection.

**1489. Back-protector.** This will be required for those who experience cold chills on the back. It should be made to cover the entire back. The portion that covers the spine should be made about an inch thick with cotton batting; the portion on each side varying from one-half to one-quarter of an inch. It should be made of canton flannel and domestic, with the cotton batting between them. The fleece side of the flannel should be placed next to the skin. The cotton batting should be held in place by being stitched. The back protector should not be washed, but the canton flannel covering removed and a new piece substituted. It should be baisted to the under shirt, and worn with this garment day and night, provided that the patient does not have night sweats. Both the size and the thickness will depend upon the liability of the patient to become slightly or severely chilled in the back. This protector may be required by some patients, even when they wear one or more extra suits of under-clothing.

**1490. Clothing for Children.** Children, especially girls, who have arrived at the age of ten years, are not as a usual thing, sufficiently well clad about the neck and upper portion of the chest or on their extremities. The continual exposure of the neck of a young girl rarely fails to bring on a catarrhal complaint even in a strong constitution, and it will certainly maintain, if not increase any inflammation existing in the head or throat. Parents may overlook the existence of a secretion from the nasal passages of their children, being conscious only of the existence of enlarged tonsils. The fact that a child has enlarged tonsils is an evidence that it has suffered under exposure for several years from the want of proper kind of clothing.



**1491. Enlarged Tonsils.** Those children afflicted with enlarged tonsils, are liable to suffer a gradual decrease in their hearing, and be seriously affected by quinsy, for the reason that nearly every cold which attacks them makes itself felt in the throat, and is liable to result in the formation of an abscess in one or both tonsils, not only this, they are far more liable to have an attack of diphtheria, and should they become victims of scarlet-fever, measles or any other disease, which in its inception or progress bears special relation to the throat, the liability to serious complication in these parts is also much increased.

**1492. Changing Under-clothing.** Weak patients should change their under-clothing as seldom as is consistent with cleanliness. Every change robs the surface of a portion of the oil that is necessary to keep the skin soft and lubricated, and to make it a non-conductor of heat. When the skin is in an oily condition, as is found in a healthy individual, the liability to be affected by cold is much less than when it is in a rough and dry state.

**1493. Sebaceous Secretion Essential to Health.** The oily state of the body is maintained by many thousands of sebaceous glands that are located in the integument. When a patient is in a weakly condition from effects of a catarrhal disease, these glands do not supply this important non-conductor as abundantly as the skin requires it, and for this reason, those patients who are thin in flesh and on the surface of whose body there is little or no oil secreted, should not change the knit suit, worn next the body, until it has become soiled, which may be in one, two, three or more weeks. I have noted, for many years, the effects of this frequent changing of the under-clothing and feel warranted in saying that the weaker the patient, the less frequently should these changes be made; and, also, the less frequently will it be necessary to do so, as the dry skin does not soil the clothing nearly so rapidly as does the healthy, oily skin.

If the suit worn next the body does not cause undue perspiration during the night, it should be worn at this time as well as during the day.

**1494. The Supplementary Suits** should not be per-



manently removed until the weather has become continuously warm in the spring. The last supplementary suit—leaving the thin knit suit next the body—may usually be permanently removed about the 15th of June. Warm even hot days may occur prior to this time, when the patient may experience some discomfort from the presence of the extra suits. But it is far better to bear patiently this temporary unpleasantness, than to risk the danger of days' or perhaps weeks' sickness, the result of a too early removal of the under-clothing. It would be well to remove some of the outer clothes during the hottest hours of the day; this would prevent the exhaustion occasioned by the heat.

It should be borne in mind that the thin suit, worn next to the skin during the whole of the hottest season, is not allowed to remain for the purpose of keeping the body warm, as, in hot weather, it would be warm enough without any clothing, but it is kept there to prevent the sudden loss of heat by the too rapid evaporation of the perspiration. A severe cold may be contracted in the hottest days of August, by exposing the perspiring body to a cool or even a pleasant draught of air. The temperature of the surface of the body, may in this way, be suddenly lowered fully ten degrees, which is very easy to result in a cold.

**1495. Shawls.** These are dangerous garments, as they are very easily removed, thus exposing the upper portion of the body to great contrasts in protection, which is liable to result in numerous colds, that are frequently unconsciously taken.



## CHAPTER V.

### THE EXTREMITIES; THEIR PROTECTION AND CARE.

**1496. The Hands.** Some patient's hands are continually in a state of perspiration; such should wear cotton gloves, and in winter woolen mits over them. Rubbing the hands with vaseline will tend to correct the dampness, and assist to keep them warm.

**1497. Stockings.** If wearing wollen stockings causes the feet to perspire, in which condition they are more liable to become cold, a pair of thin cotton stockings should be worn under them. It will be well for patients suffering from cold feet, whether they are damp or not to wear during cold weather, two pairs of stockings; one of cotton—next to the feet—and one of woolen; neither of which pairs need be very thick.

**1498.** Cold and damp feet are almost certain to induce and aggravate a congestion of the mucous membrane of the nasal passages, throat, ears or lungs. The recovery of a patient who has even a slight catarrhal affection, will be retarded if the lower extremities are not maintained in a warm and dry condition.

**1499.** Boots, with double uppers and soles, and made loose-fitting, are the proper covering for men's feet during cold weather. A removable insole is valuable for those who have damp feet. Thin and light boots or shoes that are low in the ankles, should not be worn, except in warm weather.



**1500. Women's shoes** are improving in regard to protection and comfort. Great reform was needed, and it has arrived. The shoes should be made to come up six inches above the ankle joint. Every shoemaker, who makes any pretensions to being scientific—and they talk that way now—will make lasts to fit his lady customers' feet. These lasts should have the customer's name on them. This is a great improvement. With shoes made on lasts of this kind, the lady can stand longer, walk with far more ease, and be very much less wearied at the end of the day.

India-rubber over-shoes should be worn during wet or damp weather only, and should be removed from the feet whenever the wearer enters the house.

**1501. Slippers** should not be worn by either sex during cold or even cool weather. One of the ways in which a cold is mysteriously (*i*) taken, is the exchange of a pair of warm boots or shoes for a pair of low slippers. Those who do this, forget that they have not only uncovered their feet and ankles, but have placed them in the coldest stratum of air in the room. If they will take the precaution to draw over the stockings, usually worn, a pair of heavy wooden socks, the chances for taking cold from such an exposure will be greatly reduced.

**1502. Elastic Garters.** A majority of females maintain the tops of their stockings in position by means of elastic garters. Girding the limbs in this way is liable to produce cold feet, because of the impediment to their circulation, the veins being so much compressed by the elastic bands that the blood cannot leave the limbs as readily as it should do, while the heart forces the blood to them through the arteries, whose walls are firm enough to resist the pressure of the garters. Almost every female patient will claim that her garters are not tight, yet will acknowledge that when they are removed at night, the creases below the knees, caused by the constriction, are deep enough to bury half the thickness of a finger.

**1503. Stocking Fasteners.** In order to maintain



the hose in their proper place without the aid of garters, they should be pulled on over the knit drawers, and held in their proper place by elastic straps having a brass clasp or loop at each end, so formed as to securely retain the hold on the top of the stocking. It will require two of these straps for each stocking: one on the inner and one on the outer side of each limb. As the stockings worn are usually long enough to reach above the knees, more of the limbs will be covered in this way, than when they are held in place by the strangulating elastic, or non-elastic garters. Pinning the stockings to the drawers by four safety pins—one on the outside and inside of each stocking—will also retain them in their proper places.

**1504. Foot Baths.** A good remedy for cold or damp feet is to bathe them at bed-time. For many years I have recommended that when my patients take this bath they should, after undressing, sit upon the side of the bed with the feet immersed in a sufficient quantity of water, heated to blood heat, to cover the ankles; at the same time a blanket should envelope the body, and be allowed to fall around the tub.

Sitting upon the bed while taking this bath has two advantages: First, the body being in a nearly erect position will receive more of the warm, moist air from the foot tub. Second, the patient will be enabled to get under the bed-clothes without the loss of the warm air enclosed around the limbs and body by the blanket, two adjuncts necessary to a successful foot bath.

After the feet have been in the warm water about three minutes, they should be raised out of the tub, and a pint of boiling water poured into the bath; the feet should then be immersed about three minutes longer, when a second pint of hot water should be added in the same manner, and at intervals of three minutes, a third, fourth or more pints be added until the water in the tub is as hot as the patient can bear it. After the feet have been in the water in all about fifteen minutes, they should be



taken out and dried and well rubbed with a coarse towel, and an inunction of vaseline applied with considerable friction; lastly; covered with a pair of cotton stockings well warmed.

Plunging the feet into cool water, immediately after rising out of bed in the morning, has frequently the effect of keeping them warm during the day. Young persons only should try this experiment.

**1505. Inunctions to the Feet.** For years I have recommended the application of inunctions to the feet. Such applications are usually attended with greater benefit if made right after a warm foot bath, but may be applied with good results in connection with friction alone. These applications are very beneficial for feet that perspire and they assist in preventing the feet from becoming cold.

If there is a fetid odor arising from the feet, resoreine grs. v., and hydrate of chloral grs. x., to 3ij of vaseline, will after a few bathings and anointing, correct this condition, except in rare instances. I have twenty-five or thirty patients who do not do not wash their feet with water at any time. One old lady, about 70 years old, has not touched her feet with water since she was a young woman. At that age she found that she took a severe cold every time that she bathed them. As she noticed that those who were handling fats for any length of time, had clean hands, she concluded to try the effect of oil on her feet and found to her delight, that it not only cleansed them perfectly, but maintained them warm, and cured her of ingrowing toe nails. It was upon her advice, which I received in 1869, that I have since recommended many of my patients to make the experiment.



## CHAPTER VI.

### THE SLEEPING-ROOM.

**1506. Its Temperature.** Dr. Horace Dobell, of London, in his excellent work entitled "Winter Coughs," makes remarks on the temperature of bed-rooms, that are so appropriate that I will quote them. He says: "But before leaving the subject of sudden changes of temperature, I must not forget to speak of sleeping-rooms. It is quite astonishing what follies are committed with regard to the temperature of the sleeping-rooms. On what possible grounds could people justify the sudden transition from the hot sitting-room to a wretched, cold bed-room, which may not have had a fire in it for weeks or months, it is impossible to say, but it is quite certain that the absurd neglect of properly warming bed-rooms, is a fruitful source of all forms of catarrh. We cannot too much impress this upon patients."

**1507. Warming the Bed.** Those patients who do not become warm quickly after going to bed, during cool or damp weather, should have the bed-clothes warmed by a hot smoothing iron, or a warming bed-pan, before they retire for the night. A rubber bag filled with hot water, is also an excellent means of both warming the bed, and maintaining the feet warm during the night. Warming the bed may be necessary, even if there has been a fire in the sleeping-room all day.



**1508. Changing Bed-clothes.** If a patient is subject to profuse night sweats, the dampened bed-clothes should, on each morning, be removed from the bed, and fresh, well dried cotton clothes supplied in their stead, linen sheets and pillow cases should be eschewed. If the perspiration has been but slight, the bed-sheets alone may be all that require removal, and these may be so slightly dampened, that if hung before a grate fire they will be sufficiently dried for next night's use.

**1509. Ventilation.** Good ventilation in every room of a house is essential to comfort as well as conducive to health, and of course the bed-rooms of those whose respiratory organs are affected by catarrhal disease do not form an exception. The greatest care should be taken to maintain the air in this apartment in a pure condition.

There can be no doubt that much of the benefit derived from an out-door or camp life, is due to the supply of good, fresh air. Although deprived of a soft bed, the healthy person as well as the invalid feels refreshed and invigorated after a few nights' sleep under a tent. The tendency to a recurrence of colds is lessened, and they are reduced in number and severity. This has been demonstrated time and again, during the years in which overland trips to California were frequent, and during the late war.

Many patients have informed me that they have experienced an occluded condition of the nasal passages before rising from their bed in the morning. In nearly every case of the patients so complaining, it was found that the cause was owing to either insufficient protection to the head, during the night, or to a vitiated state of the air in the bed-room, in some instances to both causes.

The air in a sleeping-room ought to be as pure in the morning, as it is on going to bed at night. In order to maintain this purity, the lower sash of the window ought to be raised, and the upper sash lowered; the former raised one fourth the distance that the latter is lowered. The extent to which the sashes should be raised



and lowered, will depend on the temperature of the outdoor atmosphere.

If the air from an open window blows directly on the bed, a curtain should be so interposed as to prevent the draught from striking the sleeper, or the bed should be moved out of the draught.

**1510. Flowers in the Bed-room.** If patients have experienced symptoms of asthma or pruritic catarrh (hay fever), they should not permit flowers to remain in their bed-room during the night, as the mould from the earth in the flowers pots is injurious. The odor of many flowers is frequently irritating to such persons.

## CHAPTER VII.

### INJURY FROM EXCESSIVE COUGHING.

**1511. "Stop your Coughing!** You cough fully twice as often as you need to." If patients will resist the tendency to cough and endure the sensation that seems to cause it, they will soon notice they may reduce the number of coughs from one-half to two-thirds, and then when they do cough, they will be enabled to raise sufficient secretion from the throat to slightly relieve it of the sensation that is partly the cause of the cough.

I am satisfied from many year's observation, that the sensation that first induces the cough, arises from irritative inflammation located high up behind the soft palate, fully three and a half inches above the place of sensation in the throat, and six to eight inches above the location pointed to by the patient's finger on his neck.

It is evident that even if a throat is healthy and an inflammation, three and a half inches above it, causes a persistent and frequent cough, this cough could not last



many weeks without occasioning so much irritation in the throat, that it also would become diseased, and it is also evident that the sensation in the larynx, caused by a distant irritation cannot be relieved by frequent coughing, nor will the cough relieve the irritation located up behind the soft palate, as it has not the least effect upon the irritated spot. This shows the great importance of controlling, to suppression if possible, a non-relieving cough. There is far more probability of an anodyne application relieving a little finger that is benumbed by a blow on the elbow, than that a cough would remove the sensation in the throat that is caused by an irritation due to inflammation or to a lodgement of a secretion behind the soft palate.

**1512. Coughing every five minutes.** I have known patients cough, on an average, ten times every five minutes for two hours in the morning, making two hundred and forty spasmodic efforts to relieve the throat of tickling sensations. Now, this is tiresome to a weak individual and the relief of one-half of their efforts may be sufficient to prevent the throat from becoming inflamed and thus prevent the lungs from being implicated in the disease. If a healthy individual will cough two hundred and forty times in two hours every morning—not to take into account the very frequent coughing through the day that is done by every such patient—he will, in a few weeks have his throat so highly inflamed that he may require medical aid for its relief. He will also experience pain in his chest, the result of the excessive use of the pectoral muscles.

A good method to help one to control the cough is to mark each cough on a card, preserve this card and endeavor to decrease the number of coughs each day. I have known patients to decrease these efforts 75 per cent. One patient coughed one thousand and eighty five times on the first day's tallying, on the next day she coughed four hundred and fifty times, on the next, only two hundred and twenty times. This may seem to some to be



work, but the result is *always* beneficial to the and to the strength of the patient. Some patients tried to control the cough without marking each down, but they are not certain as to the degree of se or increase of the cough. There is no doubt but patient will be more certain of success in control- is cough if he marks every effort on a piece of because the persistent the mental effort will great- ist in resisting the sensation of tickling in the



## SECTION II.

### Hygiene for Special Complaints.

Much that is given in this section has been already given in other portions in this PART, but as the subject is of great importance, I chose to deal with it as a whole.



## CHAPTER VIII.

### SPECIAL HYGIENE FOR SINGERS AND SPEAKERS.

**1513.** A comprehensive view of the hygiene of the voice embraces a consideration of the various parts of the body that are directly brought into action in the production of vocalization and phonation. Named in order as they are found to be the most frequently affected to the degree of impeding the formation of desired sounds, they are the NASAL PASSAGES, the PHARYNGO-NASAL CAVITY, the TONSILS, ADENOIDES, the LARYNX, the UVULA, ALVINE PROMINENCE and SOFT PALATE, the EARS, the LUNGS, the TEETH, the TONGUE and the LIPS and the DIAPHRAGM. No one of these fourteen organs can be materially affected without affecting the voice to a greater or less extent.

**1514. The Nasal Passages.** These passages should be free from any super-abundant secretion; that is, the mucous membrane should not have more mucus on it than will maintain it in a moist condition, consequently there should be none to blow out of the nose or draw out of the posterior nares or pharyngo-nasal cavity into the throat, and the breathing space should be sufficient for respiration on all occasions, except when running, or when ascending a flight of stairs of 25 or 30 steps. When lying in bed, on one side of the head, if the lower nasal passage becomes closed or partially closed, it indicates the existence of a chronic catarrhal inflammation of that part.

Sometimes the inhalation of a little warm vaseline into the closed passage will be all that is required for relief, using the inclination of the head as directed for the inhalation of warm salt water, p. 298. Applying a little vaseline on the bridge of the nose is fre-



quently beneficial in cases of this kind and also after catching cold.

If these means do not give the desired relief, a physician should be consulted at once.

**1515. The Pharyngo-nasal Cavity.** If one is conscious of the least flow of mucus from this cavity into the throat, this indicates a catarrhal condition of sufficient gravity to ask the aid of a physician, as nothing that the sufferer can do for himself is likely to result in anything but positive injury.

If a voice user is in the habit of forcibly and suddenly drawing his breath up through his nostrils with his mouth shut, making a "skreoting" sound, thus drawing the post-nasal and pharyngo-nasal secretions down into the throat, or if he, with mouth closed, sends a gust of air from his lungs up behind the soft palate out through the nasal passages, thus driving the catarrhal secretion that is lodged in the pharyngo-nasal cavity, into the posterior nares, these acts clearly prove the presence of a chronic catarrhal inflammation that will be certain to weaken the voice if allowed to remain.

**1516. The Tonsils.** These glands come next in being most frequently an impediment to voice-users. When they are in a healthy condition they are not in sight; consequently if they are ever seen they are diseased. The enlargement may be merely a swelling of a healthy organ, or it may be a permanent enlargement, in this case the name hypertrophy is given to the swollen organs. If one or both tonsils have suddenly become swollen, then it may be possible to reduce the inflammation and save the glands, but if the enlargement has been slowly coming on, or has been maintained for a year or more, then it is altogether likely that an operation by excision will be required.

**Domestic Remedies.** There are but few remedies a sufferer can apply to his painful tonsils. Gargling the throat with hot milk and water—equal parts of each—with enough cayenne pepper in it to produce a pleasant warm sensation, is frequently relieving; taking a little vaseline in the mouth, and allowing it to flow over the inflamed tonsil is beneficial, but a physician should at once be called. Gargles of strong astringents or of *chlorate of potash* should not be employed, they always do harm.

**After an Excision** of one or both tonsils, great care should be taken to prevent taking cold. If possible the operation should be performed at the patient's residence; but if performed at the physician's office, a large piece of cotton-batting should be warmed and put into each ear. The neck must be wrapped, and the mouth kept closed. A little vaseline rubbed on the neck and around the ears is a good



**protection.** The first meal after the operation should consist of soft food, as bread and milk, or oat or corn-meal porridge. If the act of speaking is not painful, this need not be restricted. As a general rule all disability from the operation disappears in three days at most.

Washing the mouth and gargling the throat with cold water early in the morning and late at night is healthful for the tonsils and fauces.

**1517. The Fauces.** The posterior surface of the pharynx, as seen when the mouth is opened wide and the tongue depressed, should not be more brightened in color than the anterior surface of the soft palate. If there is any roughness of the surface, called "follicular pharyngitis," this indicates a chronic pharyngo-nasal and nasal inflammation. If this is allowed to remain, the voice will ultimately become affected; not from the "follicular pharyngitis," but from the inflammation that causes this condition of the pharynx.

**Non-irritation.** No application of iodine, nitrate of silver, nitric acid or any other caustic should be applied to these small elevations, as nothing applied to them will cause their disappearance. They are only an evidence of a chronic inflammation in the pharyngo-nasal cavity, no one is conscious of their presence by any effect they produce on respiration, deglutition or vocalization, they are perfectly painless, and can only be made to disappear by treating the originating inflammation.

The same gargle recommended for the tonsils may sometimes be beneficial for the fauces. A solution of muriate of ammonia, grs. x, ad. ℥j, is also good as a gargle.

**1518. The Larynx.** Primary affection of this organ is extremely rare with those who cultivate their voices. Speaking or singing out of doors to a large crowd very often results in primary injury of the vocal cords, as the voice-user is not conscious of the excessive strain he is exerting on the laryngeal muscles.

Almost the only **primary affections** of the larynx that I have seen have been brought on by the use of mops, brushes, probangs, gargar, etc., applying nitrate of silver and other astringents and rubs of *potash*, cubaba, camphor, peppermint, etc. As the effects of these means and medicaments are mechanical injuries, time alone is as important and nearly the only means of cure.

**Laryngitis not Idiopathic.** Aside from these mechanical injuries, vocal disability is not due to laryngeal disease *per se*. Suppose we had a violin with all its parts perfect, the strings, keys, etc., in their right places. Now, if this instrument did not make the right tones at the right times, would it be correct to say that it was the vio-



lin's fault, when it was found the strings had not been made tight enough? Would it not be rather the fault of the tightening agent or power? So it is with the larynx.

In nearly all recent vocal disabilities and even in recent aphonias (except in the case of those who have used tobacco irregularly for a number of years, their vocal cords always being inflamed) a reflection of the vocal cords will show that they are *not the least inflamed*, that their color is similar to the white of the eye,—the normal color—but on attempting phonation the cords act imperfectly just as in the case of the violin with slack strings. The vocal strings in the larynx are not drawn tight enough, but it is not the fault of the larynx, but of the nerves that control the muscles of the vocal cords, these nerves have been seriously impaired by inflammation located, not in the larynx, for this is seen to be in a healthy condition, but two and a half to four inches above the larynx, that is, in the pharynx and pharyngo-nasal space. The surface of the parts named are *always inflamed*. This is a very important fact, and is proved to be true by treating these inflamed surfaces. On a reduction of the inflammation, the vocal disability disappears, the vocal cord come properly together and produce a perfect sound. I have witnessed this result almost thousands of times.

**Important to Singers.** I again urge that this is a very important matter with singers and speakers. If, as is universally believed, their vocal disability is due to laryngeal trouble alone, then the larynx alone should be treated. Now, if the larynx is not attacked and is vigorously treated with nitrate of silver—"the devil's stuff"—what must be the result? The answer is, as has been reiterated times without number, the case is made far worse, it not permanently injured, confirming the assertions of almost every teacher of music and elocution, that "regular physicians do not know anything about such cases."

**1519. Precautions.** Singers and speakers should, if possible, **avoid using their voices out doors.** Many young men, with excellent voices, have ruined them by singing at night, giving serenades to their young lady friends. Unconsciously, the vocal apparatus is overtaxed, and under these circumstances a serious cold is easily taken.

Do not undertake to sing in a room where a party have just completed a round of dancing, as the dust will be sure to do positive harm to the larynx. The same may be said of a room in which there is tobacco smoke, even a small quantity.

Avoid using the voice on behalf of the cause, when they are running. Singers in an opera who are not at the time engaged in singing but are soon to take part in the play, should not use their vocal cords



en in a low conversation, nor should they laugh between the acts.

Many singers act as though loudness was a part of the beauty of air song, thus running the risk of seriously impairing their vocal cords. It is not nearly as dangerous to the voice to speak loud, as it is to sing loud. Singing is holding the vocal cords in a continuous, uniform tension, whereas in loud speaking, the cords are only momentarily brought in their greatest tension.

Screaming should not be indulged in by voice-users; this act is very injurious to the vocal cords.

An adequate supply of air in the lungs is a requisite in singing and speaking. Very few voice-users retain too much air in their lungs, but sometimes this is done to their very great inconvenience.

The voice should not be used too long in a continuous strain; a change of tone is a rest to the laryngeal muscles. Answers to an *aria* should not be given by rendering the same piece a second time, this exhausts the larynx much more than giving an entirely new end of a piece.

If the voice shows any weakness on rehearsing a piece, accept this as a warning to refrain for some time. It should be kept in mind that if the throat becomes fatigued soon, the method of using the voice is erroneous, or there is a chronic inflammation of the nasal and laryngo-nasal cavity, or the body, generally, is much debilitated. Under these circumstances he should desist as soon as an opportunity presents itself. A voice that has at one time been pure in tone, and then becomes quivering and shaky, and has, at the same time, its *timbre* quality veiled, is suffering from some serious impediment which is most likely caused by inflammation of the pharyngo-nasal cavity.

No healthy singer or speaker requires to clear his throat before using his voice; those who require to do so, are afflicted with a chronic inflammation of the upper air passages.

If a speaker or singer, during the use of his voice, perspires profusely, this also indicates that his system is over-taxed in the exercise of his debilitated vocal muscles.

**1520. The Ears.** Healthy ears are very essential to voice-users. No person can speak unless they can hear audible tones, except deaf persons who hear their own voice very loudly. Such persons always speak very low and very distinctly. The vocalization of every word, whether it is said or sung is performed by the guidance of the ear; consequently, if the hearing is imperfect, every word whether said or sung will be imperfectly vocalized.

**Imperfect Hearing** is sometimes due to an accumulation of the ear wax in the auditory canal. Sometimes the accumulation is so



great that the wax presses against the drum membrane, and gives rise to most distressing symptoms. On these occasions motion of the jaw will aggravate the trouble. More frequently the mass of cerumen is suddenly increased in size by the absorption of water entering the ear while bathing, thus causing the wax to swell to the extent of completely closing the passage against the entrance of sounds from without. This has the effect of suddenly changing the tone of the sufferer's voice. Every word, said or sung, has a peculiar tone that both startles and greatly confuses. I have the history of a large number of cases whose deafness was accompanied by these symptoms.

Mr. —, a lawyer of eminence, æt. 49 years, called to consult me about an ear trouble. the following is the history of his symptoms.

"My hearing has been slowly decreasing for some months past. My wife noticed it before I did. Last Sunday I took a Turkish bath; immediately after I came from under the shower, I felt the left side of my face and ear become slightly numb, and observed that every sound was much more distinct than usual, but my own voice was loud and confusing. My ear pained me when I rubbed or pressed it. I went to my physician, but he did not attempt to do any thing for me, but sent me to you."

After a large plug of cerumen had been removed, the disagreeable symptoms at once subsided, and his hearing returned to its usual degree of acuteness.

**1521. Imperfect hearing** is sometimes due to an extension of a nasal catarrhal inflammation into the Eustachian tubes. If the inflammation is of recent date and is accompanied by a profuse nasal discharge, it is altogether likely that one or both tubes are completely closed by mucopurulent secretion from the pharyngeal cavity, thus preventing the air from entering the middle ear, and is essential to good hearing. This condition occurs most frequently in young persons.

If the subject has had chronic catarrhal inflammation, an open condition of these small passages is brought about by the same kind of inflammation, namely, an abnormally open condition, known as patency of the Eustachian tubes. In this latter condition, the voice has an opportunity to reach the ear from the pharynx, a much shorter route than is natural, occasioning so much confusion of thought that the sufferer is compelled to desist from speaking, and correct speech cannot be done at all; it being impossible to strike one note properly showing plainly the immense value the ears are to singers and speakers. In these instances the voice sounds double and produces the impression of one speaking in a large, vacant room or with the bell thrust into a large barrel. The sound of the voice that goes to the ear from the throat is frequently so loud that it is very painful.

**1521. 2d.** Again, imperfect hearing may be due to a chronic inflammatory process slowly thickening the mucous membrane of



Eustachian tubes, thus preventing the entrance of air into the middle ears, or this inflammation may injuriously affect the middle ears themselves; by thickening the mucous membranes lining them, and thus prevent the free movements of the small bones of the ear, as well as that of the drum membrane. Deafness from this cause is very slow in manifesting itself, and is perfectly painless. This is the most insidious kind of deafness; 1st. because it slowly comes on the victim without his knowing it, and 2nd. because it is the most difficult to cure.

Lastly, imperfect hearing may be due to the nerves of the ears being diseased.

**Picking the Ear.** "Is it wrong, if the ear itches to pick it with a pin, holding the pin by its point and putting the head into the ear?"

There is very little opportunity to injure the ear by picking it in this way, unless the integument lining the auditory passage is in a diseased condition. If the itching is caused by the presence of ear-wax, the ear will be benefited by removing the wax with a pin. Even when the ear-wax is not the cause of the itching, no harm can come from relief obtained in this way, except as above stated.

If the auditory passages require cleansing, do not dip the corner of a towel in cold water and thrust it into the ear. Cold water is very liable to injure the ear, producing a slight aching sensation. Everything applied to the auditory passages should be warm. Washing these passages with warm water is not harmful.

**1522. Ear Muffs.** All patients who have suffered a perforation of the drum membrane, should protect the ear against cold winds by wearing an "ear muff" or by some other equally effective means. A few minutes exposure of such persons to a cold, damp wind, will almost certainly increase a chronic otorrhœa, and a consequent further decrease of the hearing, if it does not occasion so severe an inflammation as to involve health.

Ear muffs should be worn by every person in cold weather to protect the ears from the cold and damp winds.

**1523. The Lungs.** Phonation is the result of compressed air passing through the glottis, causing the vocal cords to vibrate. The compressed air comes from the lungs, consequently if these organs are diseased the quantity of air will be great, and the sound from the lungs phonotically voluminous. This being the case, voice users



should be most anxious to increase the capacity and strength of their lungs.

**1524. Mouth-Breathing.** Breathing through the mouth is an acquired habit, and is usually caused by a limitation of space in the nasal passages, caused by swelling of the mucous membrane lining them. The effect of mouth-breathing is injurious to the throat, larynx, lungs, and nasal passages themselves, as they require air to pass through them to maintain them in a healthy condition. If the nostrils were closed and maintained so for a month, I am sure that every portion of both passages would be in a highly inflamed condition, and this would soon be transferred by continuity of structure to the Eustachian tubes and middle ears.

**1525. The Respirator.** Avoid being in the dust, or out-doors in the night air, especially if the weather is cold and damp, or foggy. If compelled to be out in such weather cover the mouth with a thick handkerchief. This, in my opinion, is by far the **BEST RESPIRATOR** I have ever seen. I recommend it to every person requiring the protection of a respirator during our coldest days in winter.

**1526. Corsets.** If capacious lungs are desirable, then everything that prevents these bellows from swelling to their utmost capacity **SHOULD BE REMOVED.** This means that *corsets* should not be worn by those who desire capacious lungs. Wearing these girdling machines is another evidence of woman's weakness of character. Men, by their good sense, their determination to be comfortable by not being "cramped" by garters or corsets, but women, and especially the more beautiful of them, are slaves, abject slaves, to these *lung clamps*. The fancy that they are more attractive if their waists are small, which is the contrary is the effect in the eyes of every student of nature. A pretty face over a small waist is bearable, but a homely face is made less attractive by squeezing that portion of her body between her shoulders and hips so as to resemble a wasp, and the smaller the waist the worse the effect on the general appearance. Every well educated man knows where a small waisted individual's lungs, liver, stomach, etc., etc., are pressed to. No sculptor would select such a warped and rather deformed specimen of humanity as a model.

**1527. Small Waists.** Many women think their waists are naturally small. No doubt the female waist is smaller than the male waist; this being the case, there is less reason for wearing corsets. The majority of women's waists have been locked in cramping machines since they were girls, consequently, their ribs have not had an



opportunity to take their proper and natural places. I do not think I ever saw a woman who admitted **she wore her corsets too tight**. The following are some of their expressions concerning this matter. "I can turn around inside of my corsets." "I can draw my corsets two inches closer and not feel them tight." "I can put a marble in the bosom of my dress and have it pass my waist," etc. Even if all this be true (and they are not questioned) it does not, in the least, alter what has been said about the harmfulness of wearing corsets.

I have had quite a number of young ladies leave off their corsets—on a trial—for three to six months at a time. With one exception, they have not again put them on; several made the trial of again wearing them to an evening party, but they were anxious to get home to take them off, not to be again worn under any circumstances. I am satisfied, that if those who have been accustomed to wear corsets will take them off for one year, they will not again resort to this very unhealthy mode of appearing attractive; THIS BEING THEIR ONLY USE.

I know that many will say, "Oh, I feel so uncomfortable without my corsets, that I am sure they do not hurt me, at least." This is just what a Chinese woman would say regarding the removal of her small cramping shoes. The intelligent American woman is as near right in this respect, as the "heathen Chinese."

**1528. The Teeth.** The throat and vocal apparatus cannot be in a perfectly healthy condition if there is even one badly decayed tooth in the jaw, or the gums are diseased.

**1529. The Tongue.** No one who has used tobacco for fifteen years and is continuing to use it, has a healthy tongue. All malignant diseases of the tongue are preceded by long continued inflammation. A healthy tongue is never attacked by a cancerous growth. Nothing, that is usually put into the mouth, can produce a more lasting congestion than tobacco, especially as it is manufactured in the last few years.

**Cancer.** Tobacco cannot produce cancer, but it does always produce an inflammation that may terminate in cancer. Nine-tenths of the cases of cancer of the tongue in men, come from inflammation started and maintained by tobacco.

In the very great majority of instances, if the use of this narcotic were discontinued, the tongue would, in a few months, so far recover its normal condition that no disagreeable sensation would be experienced under any circumstances. A small percentage of those who complain from the effects of diseases of the tongue will require special local and constitutional treatment.



Of course, if the tongue is much affected, speaking or singing will be more or less defective, as this organ has much to do with the formation of many sounds in both speech and song.

Some persons are in the habit of **scraping the tongue** when it is coated; this is quite injurious, and does not remove the offensive secretion nearly as completely as gargling the mouth with quite warm water. Neither the scraping nor the gargling will remove the cause of the deposit, this can only be accomplished by proper attention to the system generally.

**1530. The Lips.** It is seldom that the lips are diseased. They sometimes become chapped from excessive heat or cold but more often this condition indicates a disorder of the stomach. For mild cases the application of a little white vaseline or mutton suet will give the desired relief. If a chaf or sore on the lip has remained unhealed for a year or more, a physician should be consulted, as this may be the commencement of a cancer.

**1531. The Diaphragm.** This organ is one of the accessories to the vocal apparatus; therefore its normal action should not be impeded. With men its functions are nearly always up to the normal standard; not so with the women, as a rule. They employ the only means that could be devised to impede its full action. For this reason, to this sex alone is the subject of the proper use of the diaphragm addressed.

"The whole civilized world is in bondage to a pernicious habit of dress—practiced by its women and countenanced by its men—that threatens the abrogation of the diaphragm."\*

**1532. Air Space.** To develop the full power of the vocal cords, either in speaking or singing, every accessory to these sound producing organs must be maintained in the best possible condition, and as the diaphragm should do fully two-thirds of the inspiratory labor, all constriction should be removed from the waist. It is evident that without full, free and easy inspiration the results of expiration—the voice—must be decidedly modified.

Then again, motion is an essential to perfect digestion of the food in the stomach and the healthy action of the bowels, and this motion is impaired to them by the diaphragm almost alone, if it is not impeded by a form of dress that prevents the expansion of the lower portion of the lungs.

\* Kitchen, on the Diaphragm, page 8.

NOTE. —This most excellent work should be read by every teacher of elocution and music, and by every woman who wears the girdling machine, called corsets.



All that has been said in other portions of this work in regard to importance of the observance of hygienic measures, is equally applicable to professional voice users, as they suffer far more severely in the throat from even slight violations of the laws of health, than do those who do not use their vocal organs professionally.

The more healthy the body, the less liability to catarrhal disease of the mucous membrane of the vocal apparatus. This should always be borne in mind.

**1533. Prevent Congestion.** It is of paramount importance that singers and speakers should prevent congestion of the mucous membrane of the nose, throat and ears. The principal congestors, even as they occur most frequently, are COLDS, TOBACCO and ALCOHOLIC DRINKS.

As the subjects relating to the effects of colds, the use of tobacco, &c., have been sufficiently dwelt upon in other parts of this work, they will not be repeated here.

The answers to the following three questions are important to professional voice-users :

1st. Is it necessary for singers and speakers to protect their throats while going to the place where they are to sing or speak, and if so how shall they do it?

2nd. Should they use a gargle or a local tonic, in case their throats do not feel quite right."

3rd. What course should be pursued after singing or speaking, and while on the way home?

**1534. Protecting the Throat Before Singing and Speaking.** The answer to the first question is dictated by common sense, namely : protect the throat if the weather is such that if it is not protected the singer or speaker would be liable to take cold. A loosely fitted woolen neck-comfort is the best wrap for such purposes. It should not cause the least perspiration. Be particular on this point, for an over-heating of the neck might prove a greater detriment to the mucous membrane of the air passages than would happen to it, were it to be made of a neck-wrap.

A small quantity of vaseline rubbed on the neck just after washing will prove a valuable protector against colds. Many persons may fear that after the vaseline is applied to the neck, the skin will have a greasy appearance, this need not be the case, as the quantity required is very small that no one can see that any has been placed on the surface.

**1535. Gargles, etc.** The answer to the second question is that



no healthy throat requires any local tonic, as such a throat is never dry nor does it feel "just a little out of sorts."

While this is the case with the healthy throat, a throat that is not quite healthy may be temporarily relieved by various agents, but the property that these agents must possess, is that of not doing the least harm while they are giving the singer or speaker a little relief. Serious injurious compounds as "Brown Bronchial Troches," etc., composed, among other things, of cubebs, camphor, chlorate of potash or morphine, are sure to produce congestion of the mucous membrane of the fauces and larynx. Chew everything that has cubebs or camphor or chlorate of potash in it. Their effects are almost always injurious.

**1536. Muriate of Ammonia.** The only agent that I would recommend is a small tablet made of compressed purified muriate of ammonia. This will frequently assist in causing a pleasant flow of salivary secretion, which sometime relieves a dry sensation in the throat. If the sensation of dryness is continuous, a physician ought to be consulted.

**1537. Sipping Water while Speaking.** It is best not to get in the habit of taking sips of water while speaking. If the speaker feels as though he must moisten his mouth, a teaspoonful of water is just as relieving as a tablespoonful or a half glassful.

**1538. Throat "Comforts (?)"** The following is taken from Davis on the voice, and is given to show the peculiarities of some singers in their attempt to give a finishing touch to improve the quality of the voice.

With many who follow the stage, but little judgement is exercised in the selection of "throat helps" as, the following quotations prove:

"Southam takes a pinch of snuff and a glass of lemonade between acts.

"Niemann sips champagne.

"Tiebachek washes his throat with mulled claret?

"Ferenzy, the tenor, smokes a few cigars.

"Braun Brum drinks a glass of beer at the conclusion of the first act; after the second act, a little moistened bread; after the third and fourth acts drinks *café au lait*; and when she is going to sing the grand duet in the fourth act of "The Huguenots," as goddess of the art song, she demands a bottle of Moët Rose as a libation.

"Cruvell takes a mixture of claret and champagne.

"Nilsson takes a glass of beer.

Madame Borghi Mamo is lost without a pinch of snuff.

"Malibran used to take supper in her box about half an hour before



coming on the stage. She ate mutton outlets in the costume of Samson, and almost invariably wash them down with half a bottle of sauterne. This was generally followed by smoking a cigarette, which was only tossed aside just before her appearance on the stage."

These "fancies" are not recommended. The opinion of most voice-people that I have met, is that those who employed them could sing and speak well in spite of the bad effect of these "congesting" agencies.

**1539. Throat Comforts that are Recommended.** The course advised by the following singers and speakers are recommended:

Labatt, the Swedish tenor, is in the habit of eating a couple of cucumbers before appearing on the stage. He looked upon this strengthening remedy for the voice.

Wachtel, the tenor, takes an egg beaten up with a little sugar. He considers that this softens the voice, and it is no doubt very good.

Madame Sontag used to take sardines between acts.

Madam Desparoo soothes her throat with plain warm water.

Madame Cabel eats pears.

Adelid Patti prefers a bottle of seltzer water.

Ngaldi has a preference for plums.

Trevelli Bettini eats strawberries.

One of my patients, a noted star actor, takes a cup of warm milk with sugar and cream and a warm boiled potatoe with a little butter between acts.

The following is the experience of an old amateur of New York:

"It appears rational to avoid anything before singing that would irritate the throat.

"Some singers take an egg (the yolk) beaten up with powdered sugar—others advocate the eating of French prunes."

The following most excellent advice is from Prof. Scott of this

I know from experience, that his method of preparing the vocal organs for service is followed by the best results. In answer to a letter asking his views on this subject, he kindly sent me the following:

St. Louis, Jan. 9th, 1885.

Dr. Thomas F. Rumbold.

"My Dear Doctor:—Your note reached me several days ago. I have written out in the accompanying M. S., as well as my limbo has permitted, 'what I know.'"



"If there is anything of value, in your estimation, and suitable for your book, use it, or as much of it, as seems to you best.

"With high esteem and good wishes, I am  
Sincerely Yours, Jno. R. Scott."

PROF. JNO. R. SCOTT'S VOCAL GYMNASTICS AND HYGIENE FOR SPEAKERS

1539. "Several days before a public appearance, I begin the practice of breathing and vocal gymnastic exercises, several times daily, from ten to thirty minutes at a time. At first the breaths are slow and gentle but deep, the inhalation and exhalation being through the nostrils. The force and rapidity are gradually increased, the inhalation being then through the nostrils and mouth consentaneously. To take a quick full breath through the nostrils alone is impracticable. The inhalation through the mouth, however rapid, should ALWAYS be noiseless; as, otherwise, the surfaces touched by the breath current become parched and dry. The exhalation, through the mouth with moderate resistance at the glottis, I make in turn, *effusive* (gentle and smooth); *expulsive* (with a sustained rush, the throat being free and open, and the abdominal and intercostal muscles giving the breath impulse); and *explosive* (emptying the lungs through the open throat as quickly and completely as possible).

"My vocal exercises are numerous and varied. They are such as these:

"I. A light staccato striking of the vowels, after an occlusion of the glottis, on different levels of pitch, from highest to lowest. The vowels are not prolonged, but each a mere brilliant point of sound.

"II. Beginning at middle (conversational) pitch, each vowel is struck, higher and higher, until I reach 'the top of my compass'; thence down, step by step, till I reach the middle pitch or below. Each vowel is spoken not sung, and is struck abruptly and briefly with light quality (*timbre*) and force.

"III. Long upward and downward slides, as in earnest question and assertion, expulsively and explosively.

"IV. Direct wave movements, A, on the long vowels, beginning gently, swelling the sound smoothly as the pitch rises, by increasing the breath-pressure, and letting it gradually die into silence, as the final sweep downward is made.

"V. To secure resonance, clearness and blinding character to the consonants. I prefix *b*, *d*, and *g* (hard) to the vowels, grasping and holding the consonants firmly and breaking abruptly and without hiatus into the vowel, which has an upward or downward inflection. Afterward I affix the consonants named to the vowels, prolonging the murmur of the consonant as much as possible.



"VI. I prefix, affix, and prefix and affix, *p, t, k*, to the vowels, making the consonant prompt and powerful.

"VII. I take some short, familiar dramatic passage, and *shout it* in a pure whisper, and then in a half-whisper, with open throat and vigorous expulsive breath-action; the breath renewed without gasping, every few words.

"VIII. Along with these gymnastic forms of exercise, I rehearse the selections I may have chosen for public rendition, as nearly as possible in the manner in which they are to be given.

"I do not necessarily practice all the above exercises at any one time, but the entire ground is several times covered in the three or four days preceding a public appearance. Were I before audiences night after night so much preparatory practice would probably not be necessary daily. I select my time for special practice as nearly midway between meals as I am able; as then the breath organs are most at liberty, and vigorous exercise does not disturb digestion.

"I eat a hearty meal three or four hours before an entertainment in which I take part, and touch nothing further in the way of meat or drink until my duties are done. Too long a fast would render me physically weak; and to use the voice energetically "upon a full stomach" is destructive to the voice and health. Upon my return home, I eat, if hungry; if not, not. To drink water, especially iced water, immediately before or while using the voice, is injurious. In going to and from the hall, theater, or church, my golden rule is, 'keep your mouth shut!' Especially is this important *after* public use of the voice; as the exertion of filling a large auditorium has drawn the blood to the organs of speech, and there is danger of a chill. A speaker who perspires freely—many do—should be extremely careful to cool off gradually before going out-doors.

"I use nothing in the way of syrup, lozenge, troche, lemon-drops, lemon-juice, candy, sugar, nitre, cubebs, or any other medicament to "aid and comfort" throat or voice, before or after speaking. I simply go into training, to get voice and voice apparatus into the best possible working condition; and try not to subject them to undue exposure after unusual exertion.

"My honored preceptor, Mr. James E. Murdoch, the eminent elocutionist and actor invented a lozenge years ago, which, I believe, he still sometimes uses. When I took my lessons of him nearly thirteen years ago, I got a supply of them. They were consumed, with the aid of my friends, in a few months, and since then I have relied upon exercise and prudence alone to improve and preserve my voice."

**1540. Protecting the Throat after Singing and Speaking.**  
The third question, as to the course to be pursued immediately after



exercising the voice and while on the way home, is a very important one.

**Protection.** Singers and speakers should not for a moment forget that after they have exercised their vocal cords, these organs are in a partially debilitated condition, and therefore more liable to be injuriously affected by even slight exposures to cold. This plainly indicates that extra protection should be placed around the neck, but great care should be taken not to place so much covering there, that even a very slight perspiration will be incited. The throat should have no more protection than is needed to ward off the injurious effects of cold, as excessive covering would maintain the blood in the larynx, just what is not desired. If the atmosphere is even cool and damp, the mouth must be kept closed, and answers to question should be given through the nose with the mouth shut, in the usual double monotones, for yes or no.

**1541. Vocal Disability.** Temporary hoarseness is usually the result of a cold, or an excessive use of the voice. Permanent hoarseness is usually the result of a chronic inflammation of the mucous membrane of the pharyngo-nasal cavity.

Medical treatment should be instituted for both kinds of hoarseness. The longer the delay, the more permanent the congestion, and the sequent results.

If the voice is once seriously affected, it will depend on the age and temperament of the patient as to the rapidity of its recovery, and whether it will recover at all.

If a cold has been so severe that it produces marked vocal disability, treatment by domestic remedies, or under the direction of any "kind friend," should not be undertaken. A physician should be sent for at once; one who is acquainted with such diseases, as it is a matter of very great importance to drive away a cold at once, if possible.

The patient should do his utmost to resist all tendency to cough; he should suppress it completely if he can; if he is not able to do so, he should hold it in abeyance as much as possible, for the more he coughs, the more certainly will the inflammation extend to the vocal cords. He should keep in mind that he may have a severe cough (one that has lasted a long time) and have vocal disability without the vocal cords being implicated; but he should also remember that coughing will soon induce inflammation of the vocal cords.

Rubbing the neck plentifully with vasoline, and then wrapping it with a strip of flannel will have a very beneficial result.

**1542. Care of the Voice.** Of course, while suffering from a cold, the voice must not be used in singing or speaking exercises; as



soon as convalescence has commenced, then gentle exercises may be beneficial. It may be necessary for the patient to speak in a whisper in a very low tone and to avoid laughing.

On recovering from a cold, the vocal exercises should be progressive, and in accordance with well known rules given by teachers of singing and elocution. The eight exercises, given in this chapter by Prof. Jno. R. Scott, are productive of excellent results. I recommend such a course—which I learned from Mr. Scott when a pupil of his—to all of my patients who have weak chests, that is, whose respiratory expansion was hardly 2 inches, and soon observed great improvement in their lung capacity.

Sometimes a Turkish bath will have an excellent effect on full-blooded, hearty individuals, but two hours at least should be spent in the cooling room, and it would be well to have the back and neck well rubbed with vaseline, after being dried. Except for young (under twenty-five years), strong persons, the cold douche should not be taken.

**1543. Temperature of the Stage.** Many good voices have been ruined by singing and speaking on a cold stage. An over-heated stage is nearly as injurious.

It is preferable that the temperature of the stage should be pleasantly cool rather than pleasantly warm. A pleasantly cool temperature in a room where one is walking and is exercising their vocal powers, is about 65° to 70° F.; whereas a pleasantly warm temperature is in the neighborhood of 85° F.

On a stage of the latter temperature, overheating is very apt to occur, whereas with a pleasantly cool stage this is far less liable. Every singer and speaker whose throat is weak, should remember that an overheating almost always results in a cold being taken.

**1544. Diet.** Voice-users should carefully avoid every article of diet that disagrees with them. As a general thing pie, cake, nuts, salt meat, and highly seasoned food of any kind should be avoided. The voice will be at its best if the stomach is not too full or too empty. The meal before appearing on the stage should be as fluid as possible and strengthening. Beef-soup or beef-tea is excellent because it furnishes the strength without requiring great activity of the stomach.

**1545. Sleep.** One of the most common violations of the laws of health is that of remaining out of bed until 1, 2 and sometimes 3 o'clock in the morning. The nervous system has been heavily taxed by singing or acting or speaking in a theater or lecture room for two and a half or three hours; the whole body is greatly exhausted, and frequently excited. To relieve this condition of the system, unfortunate-



ly many resort to stimulants and tobacco, and frequently a heavy, indigestible meal is also taken.

This course is always productive of harm to the vocal organs and the system generally.

The relief experienced from stimulants is entirely deceptive. The mucous membrane of the nose, throat and ears is greatly injured thereby, while the imbibor is not relieved in the least, although he seems to experience relief of his weariness; not only this, but the system has an additional burden to remove; namely, the congestion of ALL THE MUCOUS SURFACES.

Much of the exhaustion is due to excitement and the only cure for this condition is SOUND, UNASSISTED SLEEP.

**1546. Sleeplessness.** Many times the whole body is in a feverish condition after a night's use of the voice; a refreshing relief, is to have the body sponged off with water and a little bay rum, while lying in bed, undressed. Have the servant apply the sponge under the bed-clothes and rub those parts of the body that produces the most relieving sensation, especially up and down the spine.

Rubbing the spine slowly and somewhat strongly has a very grateful effect, and if the remainder of the body has been well cooled, the massage—for so it may very properly be called—of the spine will actually induce sleep.

Nine hours sleep, is not too much after a night's singing or speaking on the stage. The body recovers very rapidly during sleep, but do not sleep in an ill ventilated room. Do not take medicine to induce sleep, unless by the advice of a physician. Many singers and actors do, but the practice is nevertheless injurious.



## CHAPTER IX.

### SPECIAL HYGIENE OF PRURITIC CATARRH (*hay-fever, etc.*)

**1547.** It is as preposterous to expect to even alleviate a patient afflicted with pruritic catarrh without strictly following the rules of hygiene, as it would be to maintain a ship dry with a leakage in its hull, or a man sober while continually imbibing large quantities of alcoholic drinks.

**1548. Protecting the Head; the Hair** If a patient who has suffered from annual attacks of this complaint for several years, and whose head prespires freely, should make the mistake of having his hair cut so short that it cannot be parted, he will soon learn, to his sorrow, that little can be done to lessen the severity of his paroxysms, until his hair again grows. A cap may afford him some protection but because of its too frequent removal, it will not take the place of the lost hair. A properly constructed wig will come nearest to doing this.

**1549. Wigs, Healthful to the Bald-head.** A large proportion of persons who are afflicted with pruritic catarrh are bald-headed, and the scalp of very many of them perspire profusely on the slightest exertion. With such, a very slight draught of air is sufficient to bring on a paroxysm of sneezing.



An acquaintance, who had the misfortune to be quite bald, informed me, in 1872, that he cured himself of his "hay-fever" by wearing a wig. He had suffered from this complaint for a few years, and observed that he was most liable to sneeze when his head was bathed with perspiration. It at such times he wiped his head with a handkerchief that had been wet, it produced a cold, chilly sensation to his head, and always caused sneezing; if he used a warm handkerchief he did not sneeze. He had a relative who was a wig maker, and who advised him to wear a wig to prevent him from wiping his head so often. It took him some weeks torture by the disease before his pride—AN EXCEEDINGLY FOOLISH ONE—gave way. He felt an improvement on the first day of wearing the wig and did not have an attack after that season. Of course he continues to wear the wig. Besides relieving him of his annual attacks of pruritic catarrh, he was relieved of headache also, a complaint that he had been subject to for years before his attack of "hay-fever."

I strongly urge all my bald-headed patients, whether afflicted with pruritic catarrh or with common chronic nasal catarrh, to wear a wig. The hair should be let grow until it is long enough to nearly touch the coat of dress collar; it should not at any time be much shorter or longer on *any person*, male or female.

**1550. The Beard** should be allowed to grow until it forms a good protection to the throat and neck. Shaving is a flagrant violation of one of the laws of health.

**1551. Hats and Caps.** The best hat for male patients is the soft felt hat.

A light skull cap should be worn day and night when the patient is in the house. It is not necessary to have a different cap for night wear, unless a warmer one is required at night, for the protection of the head is equally essential during all hours of the day and night.

All of these patients, male and female, perspire very freely about the head, and while the scalp is thus covered with moisture, even a slight draught of air will, in a few minutes, reduce the temperature of the surface fully 20° F. which in all probability, will be sufficient to produce a paroxysm. The cap is intended to prevent this sudden lowering of the temperature, not for the purpose of keeping the head warm.

Female patients should wear a silk hood day and night, it need not be very heavily quilted.



Those patients who do not require the inunction of the whole body with vaseline, may require to have the face, neck, hands and feet ointed with vaseline, as they retire for the night, as described in the section relating to local treatment.

**1552. Clothing.** Patients of both sexes should wear thin stocking knit, cotton and wool mixed, vest and trousers, and a heavy suit of pure flannel over them. The advantage of wearing cotton next to the body, is that it absorbs the perspiration, thus preventing a cold, chilly sensation, should the body be exposed to a draught of air. Some of my patients have felt the necessity of wearing a third suit consisting of heavy flannel even on the warmest days, and claimed that they did not suffer in the least from excess of heat. This class of patients and all whose nasal passages are affected with catarrhal inflammation require a large amount of clothing and they will wear it with great comfort.

**1553. The Sleeping Room.** The sleeping-room should be large, and well swept and dusted every day, it should face the South and East if possible. From morning until 1 P. M., all the windows and doors should be wide open; after that time they should be all closed tight and the sunlight be excluded to almost total darkness. A piece of ice, weighing about 10 lbs., hung about 6 feet high, in the middle of the room, will lower the temperature of the air to a pleasant coolness, and will continue so during the whole night. Some might think that this would make the air of the room too damp, but such is not the case.

If the ice melts too rapidly so that the air is made too cold, the ice may be covered with a piece of cotton or woolen cloth, with the woolen, the ice will melt more slowly than with the cotton covering. A swing to hold the ice may be made of a common towel, stretched and held by the four corners. This leaves the ice exposed to a downward current of warm air, which, as soon as it reaches the ice is lowered in temperature, continues in its



course to the floor, forming the lower stratum of air in the room.

The water from the ice may be caught in a bucket or other receptacle as it drops from the towel.

**1554. Sleep.** The patient should sleep between blankets, but not on feathers or old moss or old hair; a cotton mattress is the best. If a cotton mattress is not used, than a heavy cotton quilt should cover the bed mattress. It will be well to have the pillows made of cotton.

Anointing the face, neck, hands and feet with vaseline, just before retiring is quite refreshing, because it is cooling.

The "catarrhal season" should be slept away if possible, but it is not best to sleep so much during the day that the night will be passed in wakefulness. If the patient cannot sleep sufficiently long at night, an anodyne should be given; but as a usual thing the ice and quinine produces refreshing repose.

**1555. The Diet.** A good, nourishing diet is advisable. Everything that the patient thinks that may disagree with him, and all those articles he knows to disagree with him, should be avoided. Going to bed very hungry may prevent a good night's sleep. Drinking water is always healthful. One to two teacupfulls of hot water as soon as the patient rises from bed in the morning, or if convenient, before rising, is frequently conducive to good digestion. Milk, if taken after dinner, is liable to induce a cough by its causing the mucus in the throat to become quite thick and adherent.

**1556. Exercise.** Many of these patients suffer from palpitation of the heart when they take exercise, but some gentle exertion, even to the extent of inducing a slight perspiration, is quite beneficial. As a general thing the avoidance of sunlight, dust, smoke and other irritating agents that float in the air is the most conducive to comfort. Walking in a close, darkened room, in which a piece of ice is hung, to keep the temperature fully 10° F.



to 20° F. below the outside temperature, is usually quite refreshing.

**1557. To be Avoided.** Sufferers from this complaint should not bathe; should not smoke, chew or snuff tobacco; should not drink beer, wine, whisky, brandy, gin or any beverage that contains alcohol; should not be out in the night air, should not allow themselves, under any circumstances, to become angry. The disease has a tendency to make one irritable, but this condition of mind must be controlled. A fit of anger will be almost certain to induce a fit of sneezing. Every victim of this complaint can, if he chooses, cultivate a habit of becoming angry, to his own discomfiture, or of exhibiting a disposition of patience. Coughing and sneezing must be avoided if possible. The former may many times be controlled to almost complete suppression. Handkerchiefs that have become wet from nasal secretion and tears, should be put out of the room. If the expectorations are very profuse, a spittoon filled with dry earth should be kept in the room and new earth put in it every morning.

## CHAPTER X.

### SPECIAL HYGIENE FOR ASTHMATICS.

**1558.** This is another one of the sequences of chronic nasal catarrh. The care that should be taken by patients afflicted with this complaint, differs but little from that of those afflicted with common nasal catarrh.

**Precautions.** The asthmatic must avoid dust as carefully as the sufferer from pruritic catarrh. They must avoid all sulphurous odors and a dry, hot atmosphere. They must avoid night air, and remain at home on damp days, in both fall and spring seasons. I would recommend every asthmatic to list his food, being particular to note every article of diet that disagrees with him. Very few asthmatics can bathe frequently even in warm weather, but every one may keep the body perfectly clean by means of vaseline, using a "woolen rubber" twelve inches square. This is made of three thicknesses ofannel, not sewed together around the edge but tacked together every two inches, as cotton comforts are fastened together. Many



patients were very greatly astonished when told that it was possible to cleanse the surface of the body just as perfectly in this manner as by water and soap. It has the advantage of their not taking the least cold from it.

The instructions regarding the importance of avoiding colds, protection of the body in general, and all the other hygienic and sanative measures recommended for catarrhal patients, apply to all asthmatics, because all asthmatics are catarrhal patients.

**Horse back riding** is the most beneficial exercise for these patients. They should walk as little as possible during the fall and spring months.

Quite a number of my patients, who had reached the age of from 45 to 60 years, have been benefited by employing abdominal **respiration**; that is by breathing without elevating or depressing the ribs. In this way the diaphragm alone does the work of taking in the breath, and the abdominal muscles alone the work of expelling it. This rests the two sets of muscles attached to the ribs.

Female patients must not construe this into a license to wear corsets or anything tight around the waist.

**1559.** Asthmatics should eat **light suppers**; they should not drink milk after they have taken their dinner. Those who have been in the habit of drinking alcoholic liquors will be much benefited by drinking one or two goblets of hot water before getting out of bed in the morning. This will have a good effect on the stomach, bowels and kidneys.



### **SECTION III.**

#### **Sanatory Measures.**

While all of the subjects of this section are of great importance, yet many of them are only suggestive to the practicing physician.



## CHAPTER XL

### DIET.

**1560.** I would under no circumstances recommend patients who are weak to adopt a starving plan, miscalled "dieting." A good nourishing diet consisting of food that the patient knows from experience is easy of digestion is advised. There are many patients who cannot digest pastry, pickles, pork, in any shape, highly seasoned meats or preserved fruits and who are injured by tea, coffee, milk, cold water or weak stimulents. These they have found by experience to be hurtful. I have had other patients who could digest pickles, boiled or raw cabbage but could not eat beef or take beef soup without marked symptoms of indigestion. It is seen that experience alone must be the guide of what patients should or should not use in their diet, proving plainly that every stomach has a law of its own and that this law cannot be infringed upon with impunity.

**1561.** Dr. Beard's remarks on the kind of food and fluid that should be avoided in "hay fever," (which is a complication of nasal catarrh and a sequence of it), are very appropriate. He says: "Those who are especially susceptible to particular substances, those for example, who cannot digest pork or sausages or pastry, or who are made nervous or sleepless by coffee or alcoholic liquors, or whom certain fruits injure by their mechanical action on the pharynx or throat, the digestive organs, need no advice to abstain from those things while the symptoms are on them." As a general rule, plain food only.



such as is known to add strength to the body, should be taken, all else should be avoided. We should "eat to live," not "live to eat."

"**Charcoal crackers**" made of flour, sugar, pulverized charcoal etc. frequently have a beneficial effect on the digestion of those patients who suffer from that form of dyspepsia, in which the food in its process of digestion evolves gases, and the fluid become acrid. From two to five of these crackers, each of which is about two inches square, should be eaten immediately after each meal. They are not unpleasant to the taste.

Children afflicted with catarrh, having a pale complexion, and with mucous membrane in a relaxed condition, should eat plenty of animal food. Candies, cake and pastry usually disagree with them, causing the contents of the stomach to become sour.

No stimulants should be taken unless prescribed by a physician.

**1562. Water Drinking.** Drinking stimulants may become a habit; drinking water can not become a habit. Desire for water is nature's demand, consequently every thirsty person may drink water to quench his thirst at any time of the day or night; of course, this includes drinking during meals. Some may say: "Do not drink water while you are eating, it will weaken the gastric juice (?) and thus retard digestion." They will refer to the fact that animals do not drink while eating. These theorists usually recommend "slow and thorough mastication and insalivation of the food." Why do they not refer to the manner in which these same animals bolt their food? Generally, he who is healthiest drinks the most water, and at all times; water maintains his health; he would be feverish without. This individual is also a fast eater, as is every healthy person.



## CHAPTER XII.

### THE EFFECT OF EXCESSES.

**1563.** There are many professional and business men who suffer from a constant desire for change and excitement, from irritability of temper, from inability to hold the mind continuously on a definite subject, from mental and physical weariness, from forgetfulness and a state of mind that tends to waver or jump from one trifling subject to another. The causes of these mental and physical ailments are ~~many~~ due to the effect of excesses, but are almost universally laid to ~~close~~ and long continued application of the mind. No doubt this is many times the case, but not as frequently so as some suppose. My observations have lead me to believe that these symptoms are far more frequently the results of excesses and of colds, than of close mental application. Catarrhal inflammation of the nasal passages is far more frequently the cause of these symptoms of "brain exhaustion," as they are sometimes called, than is credited to it. As this inflammation is many times a painless complaint, the sufferers are entirely unconscious of its existence. If they do know it, or suspect it, they usually consider it as a trifling matter, being long accustomed to slight attacks of colds in the head, which they have observed pass away without producing serious illness. Their expressions about their condition are usually: "It's nothing but a cold. It will soon pass off," and such like. Besides neglecting their colds year out and year in, they disregard the laws of health by indulging in the use of tobacco and stimulants, thus increasing the congestion of the mucous membrane of the nasal passages and throat, which in turn has its effects on the brain, lungs, heart and stomach. Whether the nasal inflammation has the ultimate effect of producing hyperemia of the brain, or whether this condition comes from, what is called, reflex action, I am not prepared to say, but I do know that brain disturbances very



ably follows such an inflammation. At the same time, these vic-  
 of excesses are taxing their weakened brain (which is now be-  
 ing sensitive because of the hyperæmia) to its utmost in attending  
 business. Not that their business requires more brain power than  
 I, but that their brain is not now equal to their usual business.

**1564. Excesses.** Show me the man who has indulged in the  
 of tobacco and stimulants, even moderately, from his fifteenth  
 to his fiftieth year of age, and I will show you a man who fre-  
 quently complains of being exhausted while he is attending to his  
 business; he will also complain of the other mental ailments men-  
 tioned, and will require long vacations. It is to these troubles he has  
 added other diseases, acquired through immoral practices—which are  
 partly the results on the mind of the use of tobacco and stimu-  
 lants, the tobacco, through its depressing effects begetting a desire for  
 stimulants, and stimulants, venereal excesses—his cup will be full to  
 flowing. When such a man does break down, he is far more dis-  
 abled mentally than physically. Show me the man who has not com-  
 mitted these or other excesses, and has been careful to avoid taking  
 them, and I will show you a man who does not require a vacation,  
 but goes to bed from 9½ P. M., each night to 6½ A. M., next morning. He will  
 be good for a full day's work, every working day, until he is seventy  
 years old, and when he breaks down, it will be from natural physical  
 decay rather than from mental disability, his mind will be clear and  
 active. A marked contrast to the closing days of the man of exce-

**1565.** The man who does not commit these excesses, does not  
 complain of being unable to get his business off his mind at bed time.  
 When he retires for the night, he sleeps soundly, and is completely  
 rested; after which his brain is ready for another hard day's work.  
 He has no disease to maintain an unusual quantity of blood in his  
 brain, which is the sole cause of sleeplessness. With him, as with  
 other healthy persons, the usual normal proportion of blood leaves  
 the brain when he goes to his bed for rest, so that sleep is possible.

It is the man whose brain is in such a hyperæmic condition that  
 cannot attend to business, that is unable to sleep soundly. In  
 other words, he cannot sleep for the reason, as he says, that he has  
 insufficient control of his mind to withdraw it from his business.  
 When he is in his office, he has not sufficient control of his mind to  
 keep it on his business, showing plainly that it is not because of at-  
 tention to business, as said by almost every physician, but to other  
 causes that prevent sleep; namely, a diseased condition of the brain,  
 preventing the normal decrease in quantity of blood in the brain that  
 is a prerequisite to healthful sleep.

**1566. Neuresthenic.** "Oh," says some one to a forty-five



years old merchant who both smokes and chews tobacco inordinately and drinks whisky daily, "you have applied yourself so constantly and so long to business that you have exhausted your brain; you are neurasthenic, sir."

This is not the whole truth, or rather it is an incomplete statement of the case, consequently the information given is erroneous, but worse than that, it is dangerous.

That his brain is exhausted is evident from his inability to use it as he formerly had done, but while this incapacity to attend to business demonstrates exhaustion, it does not prove that it is the cause of exhaustion.

If I should see a farmer who lives in a malarial country, and whose whole system is broken down by daily attacks of intermittent fever, fail to follow his plow, I could as truthfully, or rather as correctly say; "My dear fellow, you have plowed your farm for these fifteen years, it is too much for you, your muscular system is exhausted, sir." That this farmer's muscular system is exhausted is evident from his inability to attend to his daily work, but does this weakness demonstrate that his work is the first cause of his disability? Far from it.

Is this farmer's muscles exhausted by the plowing or from the malarial fever? Is the merchant's brain exhausted by the attention to business or by other congesting agencies? It is exceedingly important to those two invalids that they receive a full as well as a correct answer to these questions. It is just as evident to me that the farmer's muscular weakness is not due to plowing *per se*, as it is that the merchant's mental weakness is not due to his attention to business *per se*, and in the latter case, it is due to the results from indulging his animal appetites to such an extent that his brain suffers secondarily.

**Conscious of Injury.** A large percentage of patients of this class have voluntarily stated to me, that they had feared that the use of tobacco and stimulants had much to do with their inability to attend to business, but not being informed of their injurious effects and having acquired a confirmed taste for them, and seeing their medical adviser, as well as other medical men of renown, addicted to the same excesses, they continued their habits and frequently endeavored to drown their troubles by still greater indulgences.

**Not Informed.** With a few exceptions, these invalid business and professional men would have desisted at once from these excesses if they had been correctly informed of the cause of their infirmity. This is the reason why I say that the physician who informs his patient that attention to business is the sole cause of his brain exhaustion, has given dangerous as well as erroneous advice, because it is an incomplete statement of his case.



If a business man observes that his mind is clear and quick when his head is in a normal condition, and that it is dull, cloudy and slow when his head is affected by a cold, or in damp weather, or after he has partaken of a wine supper and smoked inordinately, he may rest assured that these symptoms of mental disability demonstrate plainly that they result solely from inflammation in his nasal passages and the sinuses connected with them, and not from continued application of his mind to any subject.

It is well known when the brain performs its functions; that is, carries on a train of thought, this act, in itself, induces a greater flow of blood to it than there would be, were it in a passive condition.

Even the mental exertion involved in computing as simple a calculation as  $2 \times 2 + 2 - 2 \div 2 = 2$  occasions some degree of hyperæmia, but when the calculations are complex and involve numerous conditions, the degree of hyperæmia must be far greater.

It is evident that if a brain is made hyperæmic by disease, as is done by chronic catarrhal inflammation, before commercial calculation and care are undertaken, relief from mental exertion would be as beneficial as desisting from following the plow would be beneficial to the farmer spoken of; but it is also quite as evident that relief from malarial influences in the one instance, and the congesting agencies, in the case of the merchant, such as repetition of colds, resulting from the use of tobacco and stimulants, etc., that induce and maintain an abnormal flow of blood to the brain, are far more important matters.

1567. I will answer a few questions that I conceive might be asked of me, at this stage of the argument, namely:

(a). Is it not well known that there are professional and business men who do not commit the excesses spoken of here, yet are troubled, mentally, as are those who do not commit these excesses?

Every individual that I have seen that has been afflicted mentally, are those who have been addicted to the excesses mentioned here, but some brain trouble, it may be called hyperæmia, which I prefer, or inflammation. The cause of this brain trouble may not always be the result of excesses nor always from inflammation of the nasal cavities, but in very many instances, to my certain knowledge, it is from these causes. I ask, why is it not the most likely place to produce just this kind of a disease?

These cavities and the sinuses connected with them are situated immediately under that portion of the brain that performs the mental functions. They are separated from it by a very thin plate of bone, and are very intimately connected with it by both blood vessels and numerous nerves. As most of the blood-vessels in these chronic



cases have for many years been congested to such an extent that they are from 20 to 100 times their normal diameter, the nerves of this neighborhood as well as other nerves connected with them, that have a great influence on the whole system, must be affected in the same proportion, and they in turn have marked effects on the functions of the organs to which they are ultimately distributed.

That this is true is attested by the symptoms of every person who suffers from chronic catarrhal inflammation of the nasal passages, and prominent among these changes, is that of the disposition. It is a very frequent occurrence for such persons to exhibit great irritability, discontent and dissatisfaction, without apparent cause other than the nasal inflammation.

It is well known that a chronic complaint effecting any one of the extremities has the effect of producing an irritability of the disposition; how much more likely then will a long continued inflammation, situated immediately under the anterior portion of the brain, produce a change in its function, the mind. Show me the man who does not have this inflammation and I will show you a man whose mind is normally clear.

(b). Is there a person who is mentally affected and has healthy nasal passages?

There may be, I do not say that there is not, but I do say that I have not seen him.

(c). Does it follow that every man who has a normally clear mind is also perfectly healthy in his nasal cavities?

Not any more than it follows that every man who passes rapidly before your door is perfectly healthy, some one of them may be attacked by sickness or even may die before night.

(d). Does it follow that every man affected by nasal inflammation must have some of the same mental disability that the professional and business men have who are addicted to excesses?

Not any more than that every man who has been shot through the body, the brain, or the heart will die, but most persons with nasal inflammation are so affected mentally, and most persons thus shot off therefrom.

(e). Does it follow that any man may be affected seriously, mentally, by, apparently, a slight nasal inflammation?

Yes, just as some persons are killed by trifling accidents.

(f). Is there not a large number of men who commit those excesses, apparently as healthy as are those who have not committed the excesses?

It is well to use the words "apparently healthy" in this question for no such person can be healthy. It takes a longer time for the excesses to injure some, than it does others; but every person, who



exception, is injured by them when their use is continued long enough.

1568. Questions like these usually come from young men. I do not say young men as though it was a crime to be young, but because such inquiries are the expressions of these inexperienced individuals. That men are apparently healthy while addicted to excesses, is to them a guarantee that they also may indulge in the same excesses with impunity. Their statement of these apparent facts, pointedly indicate that they want a good excuse to continue habits that at the time are a pleasure only.

Who hears of these men after they have been broken down from the results of excesses? Perhaps not more than one in fifty of them are known to the public, yet this one, in all probability, has done more harm, in one month, to young men by his pernicious example and his ability to appear uninjured by his excesses, than he can correct by his fully regrets expressed during the last few years of his wretched life. It is the active, the apparently healthy, that are heard and seen; they are pointed to as proof of the harmlessness of the excesses; the moribund and physically wrecked ones are out of popular sight and hearing.

### CHAPTER XIII.

#### TOBACCO; ITS MENTAL AND PHYSICAL EFFECTS.

1569. It is only those who have acquired the tobacco habit that say it produces an exhilarating effect.

The first effects of tobacco are usually characterized by nausea and depression to a marked degree. The first time that it is tasted it is exceedingly unpleasant, and I know of no one that was not surprised at the marked contrast between its reputation for pleasantness and its disagreeable sensation when first put into the mouth. After a few weeks use, both the narcotic and exhilarating effects begin to be experienced, at the same time the nauseant and depressing effects disappear. Secondary effects—not noticed by the consumer—begin with this toleration, and manifest themselves by **mental phenomena and physical symptoms**. By the latter is meant the congestion and consequent enlargement of the blood vessels and relaxation of all the tissues with which the tobacco comes in contact. These effects are the result of the local action of the tobacco on the sympathetic nerves



of the mucous membrane of the pharyngeal and the pharyngo nasal cavities and the larynx. The **mental phenomena**, which are now under consideration, are experienced after a period of longer or shorter abstinence. With the beginner, or one who has used tobacco only about one year, the mental secondary effects or **mental phenomena** are not experienced until after an abstinence, varying from a few days to a week or so; while with the old consumer, an abstinence of from 6 to 48 hours will develop the whole series of symptoms. They are manifested by evidences of unrest, dissatisfaction, forgetfulness, impatience, disquietude, irritability and other manifestations of an unhappy condition of mind. The victim being unpleasantly aware that something is wanting; something that will bring him again toward his usual mental quietude. The relief from this mental unrest is called **exhilaration** by him, for the very same reason that the habitual drinker of whiskey calls his morning dram a tonic. While both the tobacco and the whiskey do bring their victims toward their usual condition, that is relieving them of their secondary mental symptoms, it is hardly necessary to say that the normal condition is not reached by either of them, for if it were so, evidently the discontinuation of either habit would not be accompanied by such mental and nervous disquietude.

I presume no one will say that the boy suffering from the nausea occasioned by too rapidly smoking his first cigar, enjoys its effects, nor will he say that his 50th or 100th cigar yields him any enjoyment beyond the pleasure afforded by the knowledge, that he has at last become so far habituated to its disagreeable effects, that he can perform the act that raises him, in his own estimation, up to manhood without becoming sick at the stomach. As yet the sympathetic nerves have not become sufficiently impressed to experience the exhilarating effect of the narcotic, showing that it is those only, whose nervous system has become perverted by its effects, that experience this exhilaration.

**1570. The pleasurable sensation arising from the use of tobacco is not experienced except during the time it is depressing the system.**

This proposition is not in accordance with views of either the opponents or friends of tobacco, but it is fully proven by the fact that a full meal, or spirituous drinks, or exposure to out-door air, or recovery from sickness, increases the desire for it, by increasing the ability of the system to tolerate its effects.

My own experience in using tobacco—during a period of fifteen years—was, that I, many times, smoked until I lost all desire and taste for food. I frequently would have abstained from eating, had I not known, from past experience, that after the meal I could again ex-



by my pipe. I ate not because of hunger, but because the food relieved me of a semi-conscious exhaustion, not such as would result from an empty stomach, as I had not fasted beyond the usual time, but a peculiar exhaustion, one *sui generis*; relieved of this exhaustion by food, I could again resume my pipe and again enjoy its depressing effects.

There are other conditions of the system that show as plainly as that has already been cited, that tobacco is a depressor of the nervous energies. These are nausea, hunger, sickness and excessive grief. These conditions annul the desire for the narcotic by rendering the system too weak to tolerate its depressing effects. In other words, agencies that raise the tone of the system, so that tobacco has the opportunity, as it were, to lower it, increases the tobacco appetite by increasing its ability to tolerate its depressing effects, and, agencies that lower the physical energy so low that they leave no room for tobacco to lower it without causing nausea, decrease its toleration and desire for it at the same time.

It is thus seen that the system must be in a more or less vigorous condition to tolerate the use of tobacco, plainly proving that it is a depressor of the system, and it as plainly follows that it is while the depressing process is going on, that the pleasurable or exhilarating sensation is experienced.

1571. It is quite questionable whether the exhilaration following the use of tobacco, causes the consumer to experience greater enjoyment of life, than those who do not use it.

The vehement opponents of the use of tobacco denounce it as a poison, and not only an originator of many functional disorders, such as neuralgia, anesthesia, hyperesthesia, diminished physical energy, etc., but some of the most dreaded of organic diseases, such as amaurosis, consumption, cancer, insanity, etc.; they base their argument on the continual presence of functional disturbances. On the other hand, its friends consider it a harmless luxury, one that soothes irritated nerves, clears and sharpens the exhausted intellect, fills an indefinable vacancy, produces a satisfied and calm condition of the mind, dispels loneliness, relieves weariness and induces repose. They assume that its ill effects are always transitory and that no organic lesions are ever observable. On this they base their defense.

1572. Tobacco always occasions exceedingly unpleasant symptoms that cannot be relieved except by the continued use of tobacco. While I am certain that tobacco assists in the maintenance of many functional disturbances, I do not agree with its opponents that it un-



ally acts as a poison to those who are habituated to its effects, or that it can of itself cause cancer, amaurosis, consumption or insanity, nor do I agree with its friends that it is a harmless luxury. It does not soothe irritated nerves, until its secondary effects have first irritated them. It would, of course, be absurd to say that it soothes un irritated nerves. It cannot clear and sharpen the exhausted intellect, until its secondary effects have first beclouded, dulled and exhausted the intellect. It cannot fill an indefinable vacancy until its secondary effects have first caused this vacancy. It cannot induce a calm and satisfied condition of the mind, until its secondary effects have first produced a restless and unsatisfied condition of the mind. It cannot dispell loneliness until its secondary effects have first occasioned loneliness. It cannot relieve weariness until its secondary effects have first caused weariness, nor can it induce repose until its secondary effects have caused sleeplessness. Does the novice who has just smoked his first cigar, say that it soothes his nerves, clears and sharpens his intellect, satisfies and calms his mind, or induces repose? Even if his nerves were irritated, his intellect dull and exhausted, his mind restless, his eyes sleepless, would this cigar give him the least relief? I presume that many of my readers will not require answers to these questions, but I would like to have them answered by those who say that tobacco is a luxury and adds to ones enjoyment of life.

It tobacco produces no effect that will induce the novice to continue its use. If it must have an habitual consumer on whom to produce its exhilaration by **annulling its own secondary effects**. If it must depress the system to relieve nerves that it has irritated, and satisfy a mind that it has made restless and unsatisfied, only away a loneliness that its previous use has occasioned, is not this positive proof that it relieves its victims from nothing, save from its own effects? It also as plainly proves that until the victim is suffering from secondary effects of tobacco, it produces no exhilaration, it has no relieving virtue. He must have abstained long enough from its use to experience its secondary effects, then he experience the so called exhilaration. Does the victim smoke or chew, because he is restless mentally or physically? Tobacco caused the restlessness, the relief from which he calls exhilaration. Does he smoke or chew because his throat is dry? Tobacco occasioned the dryness, and so with every pleasant sensation from which he asked tobacco to relieve him.

**1573.** As tobacco must first depress the system, irritate the nerves, becloud the intellect and make the mind restless before it produces its exhilarating effects, what evidence have we beyond the assertion of the victim (whose nerves have been perverted) that the exhilaration causes greater enjoyment of life than he would have experienced if he had not been habituated to its use? Now I ask in allcat



for, is the consumer of this narcotic, who is fully under its influence, in a fit condition mentally, to judge whether or not he enjoys life better in consequence of its use? If his sensibilities are perverted, who is wise enough to say that his judgment is not also perverted? Proof, conclusive, of his judgement being perverted, is found in the fact that ninety-nine hundredths of the victims are totally unaware of the hold that this agent has upon them, until they undertake to discontinue its use, then, to their utter surprise, they find that they are so firmly bound, mentally and physically, that it is almost if not quite impossible to gain the mastery over the habit.

My personal experience warrants me in making the assertion, that every tobacco consumer is the victim of a deception. They imagine that exhilaration follows the use of tobacco, when it is only the sensation of relief from the tobacco's secondary effects; but to attempt to make old smokers or chewers admit that their pleasurable feelings are derived from the relief of these secondary effects, is a mere waste of time, as they are totally unconscious of any secondary effects. They will readily acknowledge that if curtailed of their usual supply, they soon experience a multitude of very disagreeable symptoms; indeed these are so unbearable as to make life a burden, and there are few who will admit that these sensations are the result of the use of tobacco. Now, to get rid of this unhappy condition, they betake themselves to their nerve-perverting solace; thus, while they are dispelling their unpleasant feelings they are experiencing pleasurable sensations, proving correct what I have said, namely, that to the relief of the secondary effects, is due their exhilaration.

In some respects tobacco victim resembles a Chinese Lady of rank whose feet, since her childhood, have been cramped by diminutive shoes. As soon as her shoes are removed she is in pain, and is entirely unable to walk, but so soon as she again puts on her small shoes, her pain is abated and she can move about with her usual activity.

1574. Probably the best evidence of a devotee's unconsciousness of being held in subjugation, is the replies to friends who are expostulating with him concerning the use of tobacco. One of these victims will say, with a benign smile on his countenance, "Did you but know the pleasure this affords; you also would use it. I tell you I would rather give up the tenth of this life, than discontinue it," proving that he believes that every person that does not use tobacco is as unhappy as he is when deprived of it.

He speaks as though there was no difference between his nervous system and a non-consumer's nervous system. He has forgotten the effects of the tobacco when he first commenced its use; he has forgotten how the taste and sensation it produced caused him to be surprised



that others should use it, even doubting their veracity when they affirmed that they enjoyed it, and the only reason why he continued its use, was either because he was in company where it was used, and he chewed or smoked because they chewed or smoked; or because he thought it **seemed manly to do so**. This is the time that he should have compared his nervous system, with the nervous system of his exhorting friends, for both systems were then in about the same condition, but to make a comparison at a time when one system is in its natural condition and the other in a condition that compels the victim to chew or smoke to keep himself *compos mentis*, only demonstrates the peculiar logic or philosophy that comes from viewing the subject through "tobacco spectacles."

With equal correctness could the victim of six and eight glasses of whisky a day say to a young lady, "Mary Jane, could you realize the enjoyment of the effect of these glasses of whisky, you would also would use it. I would not exchange a tenth interest in life for my social glass." This victim would be a shaking wreck without his four fingers of whisky and the tobacco victim would be a tremble, lost, forgetful, cross fellow, unless he had his quid, pipe or cigar, and both will, as I have said, deny having any secondary symptoms from these enslaving agents, and both are deceived into the belief that they enjoy life to a much greater degree in consequence of their use.

**1575.** The congestion occasioned by the action of tobacco on the mucous membrane of the superior portion of the respiratory tract, resembles in many respects, the congestion resulting from the effects of a cold, and like those of a cold, some of its effects are transitory and some are permanent.

It is not necessary to detail all the transitory effects of tobacco. Suffice it to say that they consist in part of the nausea of the first use, after toleration has been established, of nervous trembling of the hands, of headache, of heartburn, of hicough, of perverted taste, of dizziness, of dyspepsia, of constipation, of palpitation of the heart, of dry throat and nostrils, of sore tongue, cheeks and lips, offensive breath, etc. The permanent effects consist of the local relaxation and congestion of the mucous membrane of the larynx, pharynx, paranasal and nasal cavities, and of the results following and arising from this relaxation and congestion *per se*.

The question may be asked, how can a relaxation and congestion arising from the effects of tobacco, be distinguished from a similar condition arising from a cold? It is a difficult matter to distinguish between the effects of the moderate use of tobacco and the effects of



cold, but it is not difficult to select, judging by the degree of congestion, the immoderate consumer of this narcotic.

The woman of ordinarily good health who has had one continuous cold from her girlhood to her fortieth year, and the consumer of tobacco of ordinarily good health, who, from his fifteenth to his fiftieth year, has used tobacco moderately, have equally diseased nasal and pharyngo-nasal cavities, provided both be of the same temperament. If the woman has black hair and the tobacco victim light hair, the nasal cavities will be in a much more inflamed condition, than her's and *vice versa*. If a light-haired boy, begins, at the age of fifteen to use tobacco inordinately and continues to use it excessively, the resulting congestion will be so severe as to ultimately involve other important organs; the brain, stomach, heart and the lung will be almost certainly implicated to such an extent that life will be shortened many years, and, after death, mortification will begin first in the nasal cavities.

There is another evidence of the permanent effect of tobacco not frequently observed, and in this phase too, it resembles the effects of a cold. I allude to the effect on the mind. The catarrhal female patient of thirty, and the tobacco victim of forty, are both equally unfitted for the performances of mental exertion than they would have been, had the mucous membrane of their nasal and pharyngo-nasal cavities and their pharynx and larynx not been maintained for his length of time in a diseased condition. Nor, so far as is known to me, can the mucous lining of these tracts in either of these persons be restored to its normal condition by any course of hygienic measures, or any method of local or constitutional treatment. This being the case, it effectually disposes of the assumption of the friends of tobacco, that its effects are transitory and that no organic lesions follow its use.

If the victim of the tobacco habit uses the narcotic inordinately, and at the same time in a weak condition physically, the result of a catarrhal inflammation of his nasal cavities, his eyesight, his hearing and the action of the brain will be thereby impaired. Catarrhal patients, not uncommonly, find it difficult, if not impossible, to continue, even for a comparatively short period of time, any train of thought requiring unusual mental exertion; their minds will involuntarily revert to irrelevant subjects, but with the tobacco victim, who is also a catarrhal patient, this wavering condition of the mind is so frequent and so persistent, that he soon becomes so wearied in his efforts to keep his mind on his subject, that he gives up in despair and betakes himself to his narcotic solace, allowing his mind to follow its dreamy, objectionable course. Strange as it may appear to one not subject to the influence of tobacco, this individual calls this acquired condition of



his mental being, happiness, and the agent that begets this state of mind, a harmless luxury.

**1576.** The local effects of tobacco on the mucous membrane of the nose, throat and ears, is as predisposing to catarrhal disease, as is inefficient and insufficient clothing in the case of females.

I do not propose, while attempting to prove the correctness of the above proposition, to demonstrate at this time, that catarrh of inflammation in females is due to an improper kind and amount of clothing, that must be taken for granted; but to show that the local effect of tobacco is as efficient in preparing the mucous membrane to take on a catarrhal disease, as is deficient clothing in females in predisposing them to colds. Women clothe themselves in such an inefficient manner that it is not at all difficult to account for their susceptibility to take cold on even slight exposure. But with men the same excuse cannot be offered, as it is well-known that, as a class, they are so much more warmly clad, that they are not liable to be injured from exposure to ordinary weather, therefore, they should be much more free from catarrhal disease than women, but, as will shortly be shown, more men suffer from catarrhal inflammation of the nose, throat and ears than women, although the latter are less well protected by clothing.

**1577. TABLE.—NUMBER OF PATIENTS TREATED FROM 186 TO 1881; INCLUSIVE.**

AGES.		TOTAL.		TREATED BY MEDICINE.	
		Males.	Females.	Cured.	Not Cured.
2 wks. to 1 year		17	18		
1 year to 3 years		28	27		
3 years to 5 "		33	35		
5 "	5 "	51	44		
8 "	10 "	53	65		
10 "	15 "	88	172	28	40
15 "	20 "	124	205	59	66
20 "	30 "	369	649	205	101
30 "	40 "	740	807	621	119
40 "	50 "	214	54	210	4
50 "	60 "	96	8	73	23
60 "	70 "	38	2	27	11
70 "	80 "	5	1	2	4
80 "	90 "	2	0	0	2
		1895	1650	1285	610
		3545		1895	



From 1866 to 1881 inclusive, I treated 8,546 patients for catarrhal disease of the nose, throat and ears. It will be seen that it is at the time of life that patients are mostly under the influence of tobacco and are experience the injuries from insufficient clothing, that they are the greatest sufferers from catarrhal inflammation. Up to the 10th year, both sexes are about equally exposed and protected, and are equally affected, there being 187 boys and 189 girls.

From the 10th to the 15th years, the boys, although more exposed to inclement weather than they had been heretofore, are more warmly clad than formerly. At this age they wear woolen under clothes, golden neck wraps, boots, overcoats, warm caps or hats, etc., while the girls of equal age, although much the weaker sex, and nearly as much exposed to colds as they were at an earlier age, are yet more thinly clad than they were formerly, especially during the season of social gatherings, lectures, operas and theaters. Between these ages 88 boys and 172 girls were treated; 2 of the latter and 1 of the former. This is a strong argument in favor of warm clothing. Although the boys could have been but a very few years "boosting" themselves into manhood by using tobacco, yet in this short time, this narcotic has produced one fourth of the number of cases treated. I say *produced* one-fourth of these cases, advisedly. I really believe that not one of them could have been patients had it not been for the use of tobacco.

From the 15th to the 30th year, the influences of tobacco and of deficient clothing are still more marked. Tobacco, by this time, has produced a greater degree of relaxation and congestion in the mucous membrane, thus preparing it to be the more easily affected by slight changes of the weather. The females of this period of life are still more thinly clad, although more liable to the interruption of the physiological functions of their organism from the effects of cold, their being 492 males to 719 females. Of the 492 male patients 165 did not use tobacco, colds alone being the cause of their catarrhal complaint, saving 327 persons who used tobacco, and who would not have been so severely affected with colds as to have had catarrhal inflammation, had it not been for the use of this narcotic.

**1578. Women's age of reason, from the 30th to the 40th year.** From the 30th to the 40th year, there is a very remarkable change in the relative proportion of the sexes affected by catarrhal diseases. Instead of the females being greatly in the majority, as they have been from the tenth year, their minority is even a greater contrast, there being 740 males to 307 females. I account for this remarkable transfer of the majority to the male column in this way; the females have by this time changed their condition in life; they are not so exposed to sudden changes of temperature, having been



married, and besides, they have learned, from past experience, that they must clothe themselves more warmly than was their custom in earlier life, while many of those worst affected have died before reaching this age.

With the male portion of this list, tobacco wielded a still greater health injuring influence: for of the 740 patients treated, 621 were addicted to the tobacco habit. The number who owed their catarrh to colds alone was 119, or about one-sixth of the whole number. There is no doubt in my mind that every one of the male patients who were addicted to tobacco, had catarrhal inflammation because of the use of tobacco; as they were all well clothed and they took good care of themselves in every way except as to the use of tobacco, and may be the indulgence in other excesses.

**1579.** In reviewing the relative proportion of patients who used tobacco, as compared with those who did not use it, it will be seen that the bad effects increase during the entire time it was used. From the 10th to the 15th year, only a little more than one-fourth of the whole number treated were consumers of tobacco; from the 15th to the 20th year, the proportion increased to a little over one half; from the 20th to the 30th year, the proportion grew to two thirds; and from the 30th to the 40th year, more than six-sevenths of the whole number required medical treatment because of the effects of this narcotic on the mucous membrane. These figures plainly show that tobacco causes congestion of the mucous membrane, so that it may become affected on the slightest exposure to colds. It shows also, that what insufficient clothing does for females, in exposing them to the effect of sudden and great changes of temperature, tobacco does for its victim in preparing the mucous membrane to take cold; both tobacco and deficient clothing tending ultimately to induce catarrhal inflammation. For this reason the treatment of a patient who continues to use tobacco or of a female who persists in refusing to protect herself with a sufficient amount of the proper kind of clothing, will result in complete failure.

**1580.** The local effect of tobacco on the mucous membrane, causes a far more permanent relaxation and congestion than any known agent.

My attention was first directed to the relaxing and congesting influence of tobacco while I was practicing medicine in the U. S. General Hospital at Jeff Barracks, Mo., in 1862. I was at that time, treating a patient who was a great sufferer from nasal and aural catarrh, and who smoked and chewed excessively. He frequently expressed his



self as satisfied that he was injuring himself by its use, but the habit had such a hold on him that he made no effort to discontinue it, nor did I, at the time, think he was injuring himself to the extent that I now know he was. At that time I was using tobacco myself, and consequently did not think it very harmful. A physician who uses tobacco or whisky does not discourage the use of either in very strong terms not because it would be a plain condemnation of his own habit, but because he is actually ignorant of the whole harm that these agents inflict. This patient was under my care for about three months, and died. I made a very careful post mortem examination of the nasal and pharyngo-nasal cavities, and found the mucous membrane in an excessively congested condition. It was cedematous, and of a black-brown color showing that mortification had begun at this locality before death. At the same time I made two other post-mortem examinations. In one, the mucous membrane of the nasal passages was nearly of a normal color. In the other the nasal passages were of black-red, but not of so deep a dark color as were those of my patient. On the same day I chanced to meet the physician who had treated the last patient. I spoke to him about the peculiarities revealed by the examinations. He stated that his patient was also a habitual smoker. I then learned from the physician and attendant on the patient whose nasal passages were found in a comparatively normal condition, that he had never been addicted to the use of tobacco in any form.

**The effect of tobacco on the mucous membrane.** For the purpose of investigating this, with other allied subjects, I made, during the succeeding three years, not less than twenty post-mortem examinations of a similar nature, and, judging from the state of the nasal passages, I successfully selected, in every instance, each one of the bodies, who during life had been habitual smokers, their mucous membrane was always of a much darker color than those of the non-smokers.

During the past eighteen years, my opportunities for making post-mortem examinations have been exceedingly limited, but in each instance the mucous membrane of the smoker was observed to be much darker in color than that of those who did not smoke tobacco. I will again ask: Is it true that the effects of tobacco are transitory?

### 1581. How shall this habit be corrected?

*As tobacco depresses the system while it is producing its pleasurable sensation, and as it prepares the mucous membrane (by causing a more permanent relaxation and congestion than any known agent, to take on catarrhal inflammation from even slight exposures to cold, it should re-*



quire no further evidence to show that its use ought to be discontinued by every catarrhal patient. The only question remaining to be answered is, Shall its use be discontinued at once, or shall the victim "taper off," in his endeavor to become master of himself? A peculiarity of the effect of tobacco upon the system, is, that the victim is not aware of the loss it has on him. When he throws away the last cigar or spits out the ash-quad, he will not for a moment acknowledge that he is not master of his desire and appetite. It seems but a trivial matter to him to break the habit, nor does he know how enslaved he is until he makes the attempt to discontinue its use. Then, to his surprise, what he thought could be done with but little self-denial, demands his utmost resolution, nor is the desire overcome without at least a six months' ordeal, the first three weeks of which is called a "twenty days' horror," by many of the victims.

**1582.** I will give the following dialogue and partial history of a patient's tribulations in endeavoring to overcome the tobacco habit. Although the questions and answers are nearly a repetition of one another, yet they contain some points of interest and some of instruction.

**QUESTION**—Capt W. W. A. Doctor, how about this tobacco; can I get over this throat trouble unless I stop both ch-wing and smoking?

**ANSWER**—I stated at the time you made your first visit, that if you discontinue the use of tobacco, your throat would improve to a considerable degree without any other than constitutional treatment, while with its continued use, all treatment would fail to do more than merely allay the present symptoms, and that alleviation would last but a short time after the discontinuance of the local application.

All right, sir; I will stop it. It will be no trouble to do that.

He came back at the appointed time—it being the fourth day during which he had not used tobacco—was treated, and had taken a few steps toward the door, when he returned and said; "Did you say that I ought to stop the use of tobacco entirely?"—emphasizing the last word.

To an affirmative reply he said, "All right, sir; I guess I will make a—"

It could easily be perceived from his questions, that this habit, which he thought could so readily be broken, had a much stronger hold on him than he had realized. In about one week after he said, with a slight hesitancy and with a serious countenance: "Did I understand you to say that it was positively required that I should not use any tobacco at all?"

He received an affirmative answer, and replied "All right, sir; I guess I can get along without it; I have made up my mind to make the trial." (with a smile on his face; it is a fearful trial on one's resolution, sir. About half the time I do not know what I am about; I feel as if I wanted something. I cannot read the papers, I cannot stay at my office, and cannot be called to home because I have my business to attend to. In short I feel miserable.

About a week afterward he said "My throat feels pretty well now. Do you think I can take a small chew, just a little nibble? I do not think it will do me any harm. If I cannot do that, can't I smoke a little at home? Yes, may be war that my wife will not let me smoke too much."

I replied, yes, that as his throat had been so well during the last few days if he continued to abstain, all the disagreeable symptoms they were frequent



spasms of the glottis at night after he had retired) would soon cease, also that he would soon loose the intense desire for tobacco.

He replied "All right, I want to get this throat well." Ten days afterward having finished the local treatments of his throat I remarked to him that he had missed several appointments, to which he replied "Yes sir, I know it; I thought it would be an easy matter to stop the use of tobacco. The fact is, I did not then know whether I could or could not stop, until I began to make the trial. I then learned that the habit was a much stronger one than I had anticipated, but I did not touch it in any form until last Monday. On that day I was offered a good cigar—a good cigar to a hungry man like me, is a very great temptation I can tell you—I smoked a part of it, my throat becoming a little dry from it, but in the morning it was all right again. I expected to have come here at the usual time, but was offered another good cigar, and the temptation was too great to be resisted, and I smoked the whole of it. My throat did not feel dry immediately, but during the afternoon my clerk offered me a chew which I took. After chewing the tobacco I felt a slight sticking pain in my left side of my throat; which grew rapidly more severe for a time, but next day I scarcely felt it, I thought, however, that I would stay away until all pain from the effects of the tobacco had left me, before I called to see you again."

He was conscious of great improvement while not using the tobacco. He was willing to agree to any arrangement for the gradual discontinuance of its use, but the total abstinence plan he did not wish to continue. As he thought chewing did not injure his throat as much as smoking, he proposed to take a small chew, not oftener than from three to five times a day. He thought this would be a great improvement on his old habit, as he was accustomed to both chew and smoke. The result of the trial was not very satisfactory. He frequently took a chew in violation of his promise as he said "before he thought of it."

His next plan, was to separate his tobacco into small parcels containing a very small chew. Each parcel was to be taken at a stated time—the time being marked on the wrapper. This was productive of better results, at least for six or seven weeks.

At the end of this period, he contracted a cold, which seriously affected him. While in this condition it was proposed that he discontinue the use of tobacco for three weeks, and if there was a continual improvement, it was hoped the desire for tobacco would decrease, and he could be induced to a further discontinuance for at least four or five weeks, but he could not be persuaded to abstain for more than two weeks.

During this time he was compelled to stay at home. At the end of this period his improvement was very satisfactory. Fortunately he had gained more control over his desire for tobacco as to enable him to abstain for a longer period. In four months time his desire for tobacco was so much lessened, and the beneficial effects so manifest, having gained eighteen pounds during the time, that he determined never to use it again. He kept his promise, made in 1872, until 1876; when he recommenced using it. He had entirely recovered from his throat trouble, but in thirteen months time from the commencement all his former symptoms returned. He was treated a few times receiving relief only. In the spring of 1878 he was taken seriously ill, which resulted in death.

1583. Various articles have been named and tried as substitutes for tobacco, to enable the victim to overcome the habit, but the most



successful method, is its discontinuation at once, and suffer for a few weeks, the effect of the abrupt abstinence. The peculiar nervous sensation following the total abstinence is somewhat ameliorated by taking  $\frac{1}{2}$  of a grain of sulph, quinine, in powder, on the tongue, then chewing alternately a small piece of fat yellow pine and a small piece of liquorice root. Neither the pine nor the liquorice root or the quinine are antidotes; the latter is a tonic to the nerves, the two former afford employment for the jaws.

Many patients are thus enabled to break off the habit without a great deal of inconvenience; others abstain for a time, then recommence as soon as their catarrhal affection has ceased to be a cause of anxiety.

## CHAPTER XIV.

### PHYSICAL EXERCISE.

**1584.** The neglect of physical exercise may many times assist in maintaining a general debility of the system, and a torpid condition of the bowels. To many patients, out-door exercise, a walk in the air and sunlight, is not only beneficial, but absolutely essential to health. It should not, however, be taken before breakfast, nor at night. Most lady patients leading a quiet life, will find that half an hour's walk after breakfast, will greatly aid digestion. Horseback riding is a healthful exercise, and may be indulged in at any time during the day, providing the weather is dry.

A course of gymnastic exercises will greatly benefit all who lead a sedentary or quite in-door life. I have known patients who were not able to leave their room during the entire winter, to be greatly benefitted by performing such prescribed exercises, as were suited to their physical condition, with dumb bells, pullies, rubber bands, swing etc. Such recreation will frequently induce sleep when other means fail.

It is a well known fact that exercise develops those muscles of the body that are brought into action. This is observed in the arm, after a few weeks exercise with the dumb bells or Indian club, and in the blacksmith's arm. Not only does exercise develop these



sw muscles, but every organ of the body and their functions are strengthened *pari passu*.

**1585. The kind of exercise.** While it is important that the kinds of physical exercise should be of such a nature that they are not unpleasant or disagreeable, yet there are conditions of the mind, brought on by the diseased condition of the head, that may incline the patient to think that every kind of exercise is unpleasant. Of course in such a case, the patient's judgment cannot be taken as a guide, and he must follow the advice of his friends. The reason that fishing, ball-playing, hunting, dancing and like exercises are so beneficial, both to body and mind of the catarrhal patient, when not carried to excess, is that the excitement charms him into forgetfulness, and his muscles are made to perform two and three times the usual amount of labor, at the same time his lungs, heart, stomach, bowels, etc., are made to take part in this strength giving exercise.

I have known patients, the tendency of whose catarrhal complaint was to make them gloomy and down-hearted, give way to their ever present tired and weary condition, resisting every advice to the taking of exercise, allowing themselves to **drift slowly to the grave**, in the face of every treatment, both local and constitutional. In cases of this kind *systematic massage* is very useful, as it removes the wearied sensation that pervades the whole body, and to a certain extent takes the place of bodily exercise.

**1586. Callisthenic exercise** or exercises known by this name as practiced in our common schools, are gentle movement of the body, the arms principally, but they are of little value to the pupil, save that they instruct them in the manner of holding the body in a proper or graceful position. Systematic movements, made with *energy*, using various kind of implements, such as parallel bars, trapeze, horizontal ladder, and bars, dumb bells, Indian clubs, wooden-horses, etc., under the control of a competent teacher, are most useful means of developing, in a very short time, all the animal vigor of the body. But to derive the greatest benefit from such a course, it should be taken regularly for several consecutive months.

I am greatly in favor of **well conducted gymnasiums** for both sexes, but institutions of the kind that allow the young of either sex to undertake the most difficult and dangerous feats in absence of a qualified teacher, should be shunned by all classes. A gymnasium that allows boys, or "young lords" to "show off," and in so doing maim or kill themselves, as has been done in this city on several occasions, is but little short of a nuisance.

There is much more need of gymnasiums for females than for males, as the latter sex have more frequent opportunities for physical



exercise than the former. The sedentary life that tyrant fashion drives girls to lead from the 10th to the 17th year, may be, to a great extent, counteracted by a several months course in a gymnasium, followed up year after year.

These exercises may be taken at any time of the day, except before breakfast, or during the first hour after dinner.

**1587. Walking, good exercise for young men and women**

Young men and women, who are physically able, should walk to and from their place of business each day, provided they do not walk over half a mile. School teachers also, male and female, should take sufficient exercise that would amount to walking half a mile each morning.

I do not think that taking much exercise of any kind, when one is in an exhausted condition, is beneficial.

## CHAPTER XV.

### THE INFLUENCE OF CATARRHAL DISEASES ON THE MIND AND THAT OF THE MIND ON THE CATARRHAL DISEASE.

**1588. Extension of catarrhal disease.** Catarrhal inflammation of the nasal passages invariably commences in the immediate neighborhood of the superior turbinated processes. From this locality it extends, by continuity of structure, and by vascular and nervous connections, to other parts adjacent and then in succession to remote parts; that is, the middle ear does not become diseased until, the mucous membrane lining the Eustachian tube has become affected by extension of the inflammation from the nasal cavities, nor in the larynx until it has affected the pharyngo nasal cavity and the fauces. In like manner it extends to the sphenoidal and ethmoidal cavities and to the frontal sinus.

**1589. Propinquity.** These cavities and sinuses are situated immediately under that portion of the brain which performs the mental functions. They are separated from



It by a very thin plate of bone, and are intimately connected with it by both blood-vessels and nerves. As the blood-vessels in chronic cases have, for many years, been congested to such a degree that they are twenty, thirty or forty times their normal diameter, the nerves accompanying these vessels, as well as other adjacent nerves, that have controlling influence on the whole economy, must be affected in some degree, if not in the same proportion. It would naturally be expected that they, in turn, would effect changes in the functions of the organs over which they are ultimately distributed.

That this is true is attested by the symptoms of every person who suffers from chronic catarrh, and prominent among these is a change in disposition. It is a very frequent occurrence for such patients to exhibit great irritability, discontent and dissatisfaction, without apparent cause, that is, without a cause that is equivalent to the degree of change in the mind.

**1590. Patients must restrain the disposition to be ill-natured.** It is not usually considered the province of the physician to give advice concerning the necessity of controlling the disposition of a patient's mind, or to give warning of the injury that may result from allowing ill-temper to have full sway; but experience has frequently proven to me the necessity of such control, as the recovery of those patients who do not curb their ill-nature is retarded.

**The tendency of rhinal disease to induce ill-natured temper.** It is well known that a chronic disease, affecting any one of the extremities, or various organs of the trunk, has the effect of producing an irritability of the disposition. How much more likely then will a long continued inflammation, situated immediately under the anterior portion of the brain, produce a change in the functions of that organ. It does not follow that the pain of a man's corns will be increased by indulging his ill-temper, yet, when irritability of the disposition does assist



in maintaining a hyperæmic condition of the inflamed parts, then most certainly, such indulgence should be curbed.

There are many persons whose ill-temper results solely from the distress occasioned by the catarrhal condition of their nasal passages, and to whom the injunction, "do not return an angry reply," is needed; especially is this advice necessary when their anger is so violent as to cause their face—usually pale—to be reddened by passion.

The integument of the face is reddened by the afflux and retention of blood in the capillaries; what then must be the condition of the congested capillaries of the mucous membrane lining the nasal, ethmoidal and sphenoidal cavities, as also of the blood-vessels within the cranium. Certainly this forced injection of the blood-vessels, if repeated often, must have an injurious effect on their walls, which are already much reduced in thickness, and weakened in their power to contract, and it must render them more liable to remain in a congested condition.

**1591. A kind reply must be given on all occasions.** Many patients find it almost impossible to return a kind, or even a civil reply to any inquiry, especially if made by a kind and forbearing friend. It would seem, that the greater the forbearance on the part of the friend, the less they fear to offend his feelings, and the less restraint they exercise on their ill-temper; while to a comparative stranger, they will return an answer in every way proper and kind, showing evidently that they can control their temper if they desire to do so. One patient informed me that he preferred to board away from home (although his relations were kind to him) because of the annoyance he experienced on being interrogated by his mother concerning his health. Many patients are conscious of the existence of this great fault, and acknowledge that they ought to control their temper. This they most certainly should do, as it is a flagrant violation of the laws of affection, and an abuse of the feelings of those who



have a right to expect a reply in return, commensurate with the many kind offices performed and the almost agonizing anxiety on their account, both day and night.

**1592. Patients must control their temper.** The more often a patient allows his temper to get the better of him, the more liable is he to be irritable, and if this indulgence is continued, a condition of the mind will be engendered, so resembling insanity, that his relatives or friends will believe that he is really becoming insane. On the other hand, a kind reply, even to a needless question, most certainly tends to develop a pleasant disposition, besides being a great satisfaction to anxious friends. One kind answer predisposes to another kind answer, and prevents irritation of the disposition.

That the indulgence of anger does increase intracranial congestion is evidenced by an increase of headache, increased tinnitus aurium, by vertigo and nausea, and other symptoms indicating excessive blood pressure within the cranium upon patients becoming angry.

**1593.** The following cases are illustrations of these important facts:

(a). Mr. H., of Kansas, informs me that his son had, what seemed to be, a slight attack of cerebro-spinal meningitis; was in bed only about one week. On recovery he was observed to stagger as if under the influence of spirituous drink. After he had been out of bed for about two weeks he was engaged in playing with two yoked calves. As he could not make the calves do his bidding, he became angry, and called very loudly to his sister for assistance, who was in the house, about two hundred yards distant; as she did not make her appearance, he called still louder, and grew exceedingly angry, objects around him became dim, and he fell to the ground. On the recovery of his consciousness, he walked, as well as he could, to the house. These facts were learned from him some months after their occurrence. His mother came to the conclusion, as she saw him walk into the door in a more than usual staggering gait, that he had exhausted himself with the calves. She also remembers that he was very pale and appeared much frightened. On her asking him if he had been hurt by the calves, he made no reply, but went to bed and slept for a few hours. On waking up, he then spoke and seemed to be much pleased at the recovery of his speech. He then related to them how greatly



he was frightened at his inability to speak upon recovery of his consciousness, but which had not been noticed by them, as he went immediately to bed. In about six weeks afterward he again became very angry, which immediately had the effect of bringing on a disability to pronounce certain words. A few weeks after the complete recovery from this last attack, he related his experience with the calvea.

This happened several years ago. Even at this time he is very careful to avoid becoming angry or excited, as this condition of mind always affects his speech to a more or less extent.

(b). This gentleman has a daughter who is completely deaf from cerebro-spinal meningitis. It is noticeable that at those times when she is excited by fear, but especially by anger, her eyes, which have been affected with a slight strabismus since her recovery, become much more crossed, and on these occasions her toes seem to stick into the floor, so much so that while walking across the room, she is very liable to stumble.

Probably one of the most constant subjective symptoms of chronic catarrh of the nasal passages, is the *change* in the disposition of the mind, which, in my opinion, is the result of irritation arising from long continued inflammation located immediately under the anterior portion of the brain.

I cannot better demonstrate this *change*, than by adding the histories of other patients who have been under my care for several years for the treatment of their mental and physical condition. Of course these symptoms manifested themselves only during the first few months of treatment.

(c). August 187—A. A girl of thirteen years of age. During the last three years she cried when brought into the parlor. If asked by any one of the family, whether she felt bad or had a headache, she burst into tears, but made no reply. This mental condition had prevented her from receiving instruction at school or at her home. She was small for her age; had always had trouble to keep her nose clean; used from two to five handkerchiefs every day since she had been large enough to use a handkerchief; had paralysis agitans of the muscles of the left side of the neck and left arm; had complained of a tiredness of the right arm and hand; tonsils very much enlarged, and have been twice excised; permanent teeth much decayed, the auricle of each ear projects forward, a phenomenon that indicated that her ears had been affected to a considerable extent while quite young. A stream of mucopurulent secretion was seen flowing down from the naso-pharynx.

(d). In the spring of 187—I treated a lad a little older than the girl, who exhibited symptoms very similar to those above mentioned.



(e) In the summer of 187—I treated a gentleman—a lawyer by profession—who, when he first visited me, shed tears every time that he commenced relating his symptoms. He was exceedingly ashamed of his conduct, but could not help it. This condition of mind and a persistent sleeplessness were his most prominent subjective symptoms.

(f) In 1867 I treated a little girl who frequently became so angry that her face turned dark red. She acted, on these occasions, as though she was blind. She would start in the direction of a member of the family whom she desired to strike, and in going there would run against a table or chair or the stove and burn herself, which she did several times. If the object she ran against was such that she could lift, she would grasp it and break it to pieces, and show other signs of most violent rage. On two occasions she acted as though she was in an epileptic seizure. On both of these occasions she stood still for about a quarter of a minute, and held her arms stretched out before her, with her fists tightly clenched, and every muscle of her face in a strong spasmodic contraction of the severest kind; her teeth set; her lips drawn apart and her eyes staring wide open. Immediately after each of these seizures she dropped on the floor in an insensible condition. She was put to bed, and woke up in a half an hour feeling as well as usual.

(g). A druggist of this city experienced a sensation of continual fear as soon as he left his home. He did not have courage enough to come to my office alone, and was, for several months, accompanied by a young man. Several times when he was in the street, his sensation of fear was so great that he trembled, and was bathed in perspiration.

**1594. A gloomy condition of the mind should be resisted.** The patient should resolutely determine to occupy himself with subjects that will take his thoughts off from the contemplation of his ailment. As the treatment of the local inflammation progresses toward a favorable termination, these disturbances of the mind will gradually disappear.



## CHAPTER XVI

### THE EFFECTS OF PATENT MEDICINES ON PERSONS AFFLICTED WITH CHRONIC NASAL CATARRH.

**1595.** There are many persons whose nasal, head, throat and chest troubles would be slight, had they refrained from using the so-called remedies for catarrh that are advertised in the newspapers. I am satisfied that little is known, by either the profession or the community, of the great injury done by these agents, especially in America.

During the last sixteen years (1872) I have made it a practice to inquire of my patients concerning their efforts at alleviating their catarrhal troubles, and found that about 15 per cent. of them had not used any kind of a remedy; about 20 per cent. had been treated by physicians, and the remaining 65 per cent. resorted to patent remedies for catarrh.

The first class, as they may be called, did not, as a rule, appear as though they were severely afflicted, but few of them complained of very great physical suffering, nor did many of those under 35 years of age lay much stress on their mental suffering. None of their symptoms indicated that their attack was acute, consequently their objective symptoms, such as accumulations of mucus, thickened mucous membrane, etc., were more marked than their slight subjective symptoms indicated.

Those of the second class were more severely afflicted but still the majority of them complained more of physical than of mental discomfort.

**1596. The Effect of Patent Remedies.** With the third class, the 65 per cent. who had resorted to patent cures for their troubles, these conditions were reversed. They complained far more of their mental than of their physical ailments and all of their symptoms were more severe than either of the other classes. They evidently had far more pain than the second class, but their mental afflictions were the



occasion of so much greater solicitude than their physical sufferings, that the latter were made secondary. They complained of melancholy, loss of memory, dissatisfaction, and were not refreshed by sleep even when they could close their eyes. Many of them said that they felt more tired on rising from bed in the morning, than when they went to bed at night. A large percentage timidly intimated that a fear of becoming insane was often forced upon them by their own observations of the actions of their mind. This was far more dreadful than their physical sufferings.

**1597. More Men Injured than Women.** The male portion of this class suffer much more severely than those of the female portion who (a) passed their 35th year of age. It is not difficult to account for this peculiarity. The female of this age had learned from experience to dress more in conformity with the laws of health, which, if it did not counteract some of the injurious effects of the "cure," at least it did not increase them while the males, as a rule, instead of endeavoring to conform as near as possible to the laws of health because of their illness, actually augmented their complaint by an over-indulgence in the use of **tobacco and stimulants**. The disease, because of its being rapidly increased by the irritation of the "cure," seemed to invite them to an increased use of **these two prime congestors** to an extent far greater than formerly, in the hope of obtaining, to some degree, their mental trouble.

My observations lead me to think that many of our inebriates come from this class; that is, from a class of invalids who are suffering mentally from nasal catarrh that is being rapidly increased by some cause. Their distress is so great, that it drives them to take anything that will give even partial relief.

For many years I have noticed that there is a limit to the use of tobacco by all catarrh patients, but the limit is sooner reached by this class. As soon as the inflammation arrives at a certain stage of intensity, the result of a sudden increase of the disease from any cause, the pneumogastric nerve is easily affected, then a slight additional increase of the inflammation of the mucous membrane or a slight depression of the system occasioned by a little over-indulgence in tobacco, will cause a reaction that will be felt in the stomach, resulting in qualmsiness. Under these circumstances, tobacco, in any shape cannot be tolerated.

I would like to say in passing, that it would be well for the victim of the tobacco habit to take advantage of this rebellious condition of the stomach, and discontinue the use of this peculiarly fascinating agent. The remembrance of the exceeding convincing command that the stomach made to cease the use of tobacco, which it is needless to say was instantly and most willingly obeyed, has given him a good "start," and will exert a potent influence in holding him to his resolution to "quit for good."



**1598. Stimulants; Narcotics, etc.** Unfortunately, stimulents do not have a sickening effect on the stomach. Many of the sufferers claim to get relief from them through their obtunding influence, and they seem to counteract an ever present weariness, which is a frequent symptom of these patients. With some, stimulents do not deaden their disagreeable feelings, then they resort to the use of opiates, chloral, cocaine, etc., which is certain to increase the congestion even if it does give relief for the time being. If these deceiving narcotics are continued for a few months, their use will be almost certain to become a confirmed habit.

Such a human being is fast approaching a condition, that may very properly be called, "good-for-nothing." His physical and mental capacity will be so far below par, that he will feel actually unable to make sufficient exertion to attend to his business, nor will he be capable of managing his business transactions if they are in a any way complicated.

**1599. Loss of Virility.** If to these ailments are added another proof of weakness, the loss of virility, which not infrequently follows as a sequence of excessive catarrhal inflammation caused by any kind of an irritation, the victim is in a fit condition to end his troubles by self-destruction. This method of relief is not an infrequent subject of conversation during the first visits to my office. It is not an uncommon thing for female as well as males to say that they would prefer death to an existence in this life, if they are not to obtain relief.

These symptoms, which are those of a greatly aggravated case of catarrh, are some of the results that follow the use of newspaper remedies, or, to make it more comprehensive so as to embrace all cases, in whatever way their catarrh may have been increased, the result of the use of agents, which, while they give momentary relief, cause an increase of irritation, that always ends in producing greater congestion, consequently increase of disease.

**1600. The Reason for Using Patent Medicines.** I have asked my patients for their reasons for employing these newspaper cures when they knew they were ignorant of their composition and effects; their answers invariably were; that they saw many of their symptoms described in the advertisements and, as these advertisements were often seen in religious papers, they thought they were safe in using the "cures." These reasons with the fact that it did not cost much (?), induced them to give it a trial.

In many instances I found that they employ the patent agents more "on account of a fear of what their catarrhal complaint might run into"—to use their own words—than for relief from pain. Accompanying this fear there was another: many of them had relatives



who had died of what the doctor called consumption, and they feared that they might have inherited that disease and that their catarrh was the commencement of it.

By the way; the unproved, cruel assertions, that disease is inheritable—which I have denied to a large number of the members of the profession, during the last seventeen years, 1879,—has placed many an unearned dollar in the doctor's pocket, and many an easily frightened man and woman in an insane asylum and an untimely grave.

**1601. The Deceptive Character of Patent Remedies for Catarrh.** Most of the "cures" are composed of ingredients that produce a cooling and an anodyne effect on the inflamed and irritated mucous membrane, thus relieving the sufferer, for the time being, of the disagreeable heat of the parts and the annoying ever present distress. It is this deceiving property of these "cures" that induces the victim to continue the applications and to make subsequent purchases.

If the "cure" is a liquid, as Sanford's Radical Cure, Syko's Cure, Pond's, Papillon Cure, Lanes's Cure; or a powder that is to be put into water and used as a wash as Sage's Catarrh Remedy, Jordan's Cure, Wie De Meyer's Cure, Tonsley's Cure, Herman's Catarrh Cure, etc., cubeb or camphor or other agent of a cooling nature will form a part of their composition. The effects of both cubeb and camphor are positively injurious, the user taking cold on even slight exposure, and after a few repetitions of these "cures," symptoms of cold will be experienced without any exposure. The effects of cubeb and camphor is to cause an instant and excessive contraction of the blood vessels. This excessive contraction results in great exhaustion of the blood-vessel muscles, the result of which is the symptom of a "cold in the head."

**Vapors.** If the "cure" is a liquid then is to be used in the form of a vapor, as the Campho Carbolate-Catarrh Cure, or is to be inhaled from an instrument as Cutler's inhaler, it will contain tincture of iodine, carbolic acid, chloroform, etc. The vapor of the tincture of iodine is quite irritating to the already irritated mucous membrane, and will cause a profuse secretion of mucus which is conclusive evidence of its irritation. This can be readily proved by inhaling it alone. Carbolic acid always produces congestion whenever its strength is sufficient to induce a benumbing sensation, and this is its strength in the liquid accompanying the Cutler Inhaler. It is seen that when these agents are inhaled in combination, and especially if chloroform is also a part of the compound, the sensation of irritation that the iodine produces, is not experienced, because the anæsthetic property of the carbolic acid covers it, as it were, consequently the victim is severely injured without being aware of it.

**1602. Sure cures always deceptive.** In fact, so very de-



ceptive are most of these "cures," that, instead of being warned of their baneful effects by their employment, almost every individual who uses them for the first time, experiences, as I have said before, a sensation of relief, and is greatly elated at their good fortune in finding a cheap, sure remedy.

**1603. A Graded Course of Injury, Going from Pleasant Relief to Absolute Intolerance.** Unfortunately the pleasant sensation arising from the cooling effect of the cubebs and camphor, and the anodyne effect of the carbolic acid are very short-lived, for the reason that the injury done by the first application (that is the irritating effect of the iodine, the congestion following the carbolic acid, and the colds resulting from the cubebs) annuls some of the pleasant sensations produced by the second application; or, in other words, the injury resulting from the first application is added to the irritation occasioned by the disease, so that the pleasant sensations that are produced by the second application are not sufficient to overcome both irritations and leave the victim feeling as markedly improved as from the first application. This result follows each succeeding application, so that the latter applications are made, not because of the relief experienced at the time, but because the remembrance of the great relief experienced after the first applications. The pleasant sensation becomes less and less with each succeeding application, until the injurious effects are greater than the pleasant effects can overcome, then a slight inconvenience is the result. This result will soon be increased to intolerance, if the "thing" is "pushed" regularly for a few weeks or months, at which time the victim's condition is most painful indeed, as has already been described.

**1604. Continued Application Increases all Catarrhal Symptoms.** Frequently, before the victim is made painfully aware that each application of the "sure cure" is doing him positive harm, he will observe that immediately after the transient, pleasant effects have passed away, his catarrhal symptoms are increased: that is he takes cold more frequently and more severely; his headaches last longer; his difficulty in breathing is greater; his gagging and his efforts at clearing his throat in the morning are more troublesome; his memory shorter; his irritability of temper is markedly greater, and so on with every symptom occasioned by the disease when it is aggravated by local applications.

**1605. Other "Sure Cures."** Besides the "cures" mentioned, there are others, but most of them produce about the same effect and symptoms, each have a cooling agent or an anodyne in it. Many of them are in the form of a powder, such as Toudy's Snuff (cubebs, menthol, camphor, chlorate of potash, soda, etc.); Kroy's Diamond Catarrh Remedy (carbolic acid, cinnamon, soda, salt, etc.); Marsden's



catarrh Snuff (camphor, chlorate of potash, etc.); Lyon's Tonic Snuff (Peruvian bark, camphor, iodine, etc.); Dobyn's; Herman's; Durno's; German Catarrh Cure; McLean's; Shiloh's; Hoyer's; etc. every one of which must injure every person who uses them. A few are in the shape of an ointment as Hall's (cubeba, etc., scented with rose); Ely's (mercuric iodine, cubeba, etc.), etc.

**1606. Cigarettes.** Some of the "cures" are in the form of cigarettes as Draper's, Murison's, Lang's, Gale and Bloet's, Jefferson's, Limrod's etc. The latter two are to be smoked in pipes. Cubeba is the principal injurious agent in these cigarettes and powders. Some are to be taken internally and are almost perfectly inert, as "Constitutional Catarrh Remedy," a liquid, that tastes exactly like a very weak solution of muriate of ammonia; Hall's Cure, a very weak solution of quassia; another, Roe's Nasal Pastiles (cubeba, etc., these are inserted in the nostrils) and still others that bear the name of cure but make-believe discoverer or inventor or their patentee, such as Kirkwood's and Crosby's Inhalers.

**1607. Inhalers.** Most of the inhaling apparatuses are so illustrated that they show the method of application. The sufferer, better named the victim, is seen in the act of blowing the white vapor out of his nostrils after he has inhaled the air through the bottle. This is intended to demonstrate that the vapor, after it has passed from the mouth up behind the soft palate and out through the nostrils, must have produced a beneficial effect on every portion of the diseased surface in the nasal cavities, which it does not do.

Most of these inhalers are apparatuses for the generation of nascent muriate of ammonia, which is seen to issue from the nostrils in quite a large volume. The vapor is made by passing air through muriatic acid and aqua ammonia, as stated in topic 584 (b).

**Frauds.** I have collected every catarrh, asthma and hay fever "sure cure" that is in the market, numbering in all 58, and have carefully examined them. Eighteen of these "sure cures" are bald-faced frauds. One ounce of quassia chips, a pound or two of table salt and 40 gallons of water will make a barrel of "sure cure" that sells for one dollar a bottle, holding six ounces; the same quantity of water, a pound of muriate of ammonia, a pound of ground cubeba and a little common potash will make another barrel of "cure" that sells for fifty cents a bottle, holding four ounces. These two are the best of the seven frauds.

**1608. Nasal Catarrh not more Frequent now than for many years, nor more frequent in America than in Europe.** I stated at the beginning of this paper that Americans especially were greatly injured by these advertised cures. I am satisfied from conversation with physicians in most of the large cities in Europe, that they do



not see this third class; that is, those who resort to newspaper remedies, for the simple reason that very few of the European catarrhal sufferers resort to advertised remedies, nor do their newspapers advertise catarrh "cures" to a great extent.

It is because this class, which is very numerous, complains so much and so loudly of their symptoms, that makes it appear as though nasal catarrh was far more frequent now than formerly and far more severe and frequently seen in this country than in Europe; both conclusions are erroneous.

**Nasal secretion.** Those of us who have arrived at our fortieth or fiftieth year of age will recollect that very many of our school-mates had "dirty noses" and that sniffing up the nasal secretion was a most common practice by both the boys and girls of our young days. None but the most ignorant need be informed that this was due to a very profuse catarrh of semi-chronic form. I do not think that any one will say that they observe to-day, more children with profuse secretion running from their nostrils than they saw in their youth. My observations leads me to say that there were as many children affected with this kind of nasal catarrh 20, 30, 40 and 50 years ago as at present. So much attention was not given to it at that time, consequently but few saw it. That there are as many persons suffering from nasal catarrh in Europe as in America, I know from observation, but because of the proneness of Americans to patronize advertisements, and because of their numerous, loud complaints after being injured by these advertised cures, this disease appears more frequently, now-a-days, as I have said, than formerly, and more frequent here than in Europe.



## CHAPTER XVII.

### THE TEETH.

**1809. Decayed Teeth.** Many years of experience and observation warrant me in asserting that the presence of decayed teeth and diseased gums will maintain catarrhal inflammation of the mucous membrane of the nasal and pharyngo-nasal cavities, the throat and ears. It is frequently the case that the catarrhal disease of these organs can only be ameliorated while decayed teeth remain in the patient's mouth, even when they are painless. On the other hand, I have observed, in a few cases, that catarrhal inflammation of the antrum of Highmore causes the upper molar teeth to become diseased. I think that it will yet be shown that the teeth will frequently become diseased because of excessive inflammation of the mucous membrane of the nasal passages and the antra of Highmore.

At the first visit of a patient, I make as thorough an examination of the teeth as I do of the nasal passages. If the teeth are decayed, or the gums diseased, I not only earnestly recommend the service of a dentist, but, in many cases, insist upon it as indispensable.

A few illustrative cases demonstrate the correctness of the view that the teeth exercise no small degree of influence upon the system.

(a). In December 1866 Mr. H. æt. 37 years, a lawyer consulted



me in regard to a furious tinnitus aurium. He told me that the noise in his left ear was so great as to deprive him of sleep, and the tone of so melancholy a nature as to suggest suicide as a means of relief. During the three weeks previous to seeking my advice and treatment the symptoms had been greatly aggravated, from the effect of using a nasal douche, at that time very popular and recommended by every physician for nasal trouble. I learned that he had suffered from nasal catarrh since boyhood, and that he had aural catarrh as well. After six weeks treatment, the inflammation in the nasal passages and ears were greatly relieved, as was also the tinnitus. At this time the noise in the ears remained about the same, except when I tried to inflate the middle ear, which always made matters worse. I did everything for the relief of the tinnitus that was advised in the text-books of the day. The more closely I followed the authors, especially observable when the Eustachian catheter was employed, the greater the noise in the ear. Finally my patient said that when I "left his ear alone" and mildly treated the nasal catarrh, the tinnitus lessened. After this I did not treat him for ten days. The result being an increase of inflammation in the nasal passages, also an increase of the noise in the ear. I then treated him a few weeks longer but I became discouraged at the unfavorable result. While in this frame of mind, I discovered that he had decayed teeth, and several whose crowns were entirely gone, leaving five or six half covered roots in his jaws. As the majority of these were on the left side I advised that the tongs be withdrawn, and the diseased teeth and gums treated. The more I thought about the case, the more firmly I was convinced that what had at first been a mere suspicion, was in reality the obstacle that stood in the way of successful treatment, namely the decayed teeth. I insisted upon a removal of these teeth, and felt warranted in making a non-compliance on his part, sufficient cause for a discontinuation of treatment, and so save me the opprobrium of a failure.

Dr. Homer Judd, then of this city, a well known dentist, present in an adjoining room, was asked to be present during my conversation on the subject, with my patient. He stated that he did not know that an affection of the ear would be relieved by treating the decayed teeth, but he knew that the nerves of the teeth and some of those of the ears, were branches of a common nerve; that pain in the teeth frequently caused pain in the ears and vice versa; and, that as the patient's teeth were in a very bad condition, he advised that his mouth be made sound by treating his gums and teeth. This he said could be done, even though it did not have the effect of benefiting his catarrhal troubles. The patient submitted to the dental treatment and before it was completed a marked benefit accrued to both the ear



al and aural trouble, and the tinnitus, although not entirely removed, had decreased to such a degree, that in a few weeks time he was barely conscious during the day time of its presence. I have treated him almost every fall since for catarrhal trouble, but the ear symptom has never given him serious annoyance.

1610. Since this experience I have not omitted to examine the teeth and gums of every patient. In many instances I believe that my course of treatment has been greatly shortened, and rendered more permanent by the beneficial effects of the dental treatment on the general health, as well as on the local trouble.

Many additional cases could be cited, if necessary, to prove the correctness of this view. The following statement of patients are appended, because the symptoms are rare and show more fully the relationship between the teeth and the other organs of the system.

(a). Mr. J. C., *et.* 42 years, consulted me in January, 1867 in regard to catarrhal trouble. The treatment was so far successful that at the end of four weeks time he experienced but little annoyance from the complaint. Considering himself so much improved he discontinued treatment for a few weeks when the original trouble returned. I had failed to make a careful inspection of his teeth, for the reason that he wore an artificial plate. However, as I began to search for the cause of the return of the discharge I discovered that he had several roots of teeth under the plate from which there was a continual discharge of pus, and learned that at such times as the catarrh was most troublesome and he had neuralgia in the head, his teeth were painful. I advised the immediate extraction of the teeth, and the patient readily consented. The effects were all that were anticipated and his neuralgia seldom troubled him afterward.

(b). Miss G. W., *et.* 22 years, a singer in one of our church choirs, was treated in March, 1876, for naso-pharyngeal catarrh, and for impairment of her voice. On the first visit I noticed that her teeth were in a bad condition, and advised that she secure the services of a dentist. She promised to do so, but from fear of the pain that the dentist would give her, she deferred attending to the matter. The treatment relieved the catarrhal trouble, but the inflammation of the vocal cords was but slightly ameliorated. Becoming discouraged at the success attending the treatment, she left me and secured the services of another physician, who treated her for several months with like results. In the Spring of 1877, she again visited me for treatment. I again insisted that she procure the services of a dentist: she



## HYGIENE.

completed, and the catarrhal treatment that was given and continued for six weeks, gave results that were quite satisfactory.

(c). Mr. —, minister, *et.* 52 years, in May, 1877, required treatment for hoarseness. During his visits he mentioned, casually, the fact that if any food became impacted between the first and second molar teeth of the lower jaw, he felt impelled to clear his throat by hawking. On one occasion a small piece of fish bone became fastened between these teeth. He made frequent unsuccessful efforts at its removal, which resulted in rendering him completely aphonic for two days. The removal of the bone relieved him of the throat trouble entirely, and in a few days time his voice returned with no other treatment.

(d). Mrs. —, *et.* about 32 years, stated in October, 1877, that frequently after contracting a bad cold, she had attacks of palpitation of the heart; also that during a period of three years past, she had at no time received dental treatment without giving rise to palpitation. On one occasion her dentist was compelled to leave a tooth that had become so severe was the attack of palpitation.

(e). Mrs. —, *et.* 19 years, told me in March, 1878, that during the past two winters she always had pain in the left arm it was as if she attempted to bite any hard substance, such as an attempt to crack a nut or a hazel nut, on the left side of her mouth. The pain in the left arm was in every respect similar to the pain not unfrequently experienced by patients who have a severe catarrhal inflammation in the left ear and nostril.

(f). Mr. —, *et.* 42 years, in Dec., 1879, desired treatment for continual clearing of the throat and occlusion of nasal passages. He also had skin disease on one side of his face. Local and constitutional medication had the desired effect upon the throat and nasal passages, and the eczema was also ameliorated. As the patient had defective teeth in his mouth, I recommended he engage the services of a dentist to remove them. Dr. A. H. Fuller, of this city, extracted the roots of nine teeth. In two weeks the eczema was nearly well, a month more there were no signs of it.



## CHAPTER XVIII.

### THE SURFACE OF THE BODY; BATHING, AND THE APPLICATION OF VASELINE.

1611. The man who first promulgated the expression that "Cleanliness is next to Godliness" uttered an absurdity; there being no relationship between the condition of cleanliness and the quality of godliness. It would be no more absurd to say of a blacksmith, that because he is dirty he is devilish. Besides the expression that "cleanliness is next to Godliness" being a meaningless one, it is very dangerous, and I think that it has killed its thousands. I know of quite a number of patients, who, in obedience to principles similar to those that appear to be contained in this expression, have bathed, not because they were in need of washing, but because they thought that they ought to wash for fear of being uncleanly, even when they had, during a number of years preceding, taken severe colds at each and every bath.

The remarks hitherto made concerning the frequent hanging of under-clothing by delicate patients, will apply equally well to their too frequent bathing of the body. Ablution should not be performed more frequently than the surface of the body requires cleansing, which, probably, will not be oftener than once in one or two weeks, in warm weather, and once in four to eight weeks, in cold weather. With a few it may not be necessary to bathe at all during the cold weather. As patients regain



strength and flesh, oil, the natural secretion of the skin, will increase in quantity, and because of its presence, extraneous matter will accumulate on the surface faster than when they were in a weak, non-oily condition, consequently they will need to be washed more frequently; nevertheless bathing should be postponed as long as is *consistent* with cleanliness, until full and healthful vigor is enjoyed.

**Bathing not always healthy.** Many patients follow the common practice of bathing as *often* as possible, instead of as *seldom* as possible. Bathing as often as possible is harmful; because washing the body, *per se*, forms no part of the means that is to relieve them of their catarrhal complaint. This may seem strange doctrine to many, but I know it to be true. I have had many weakly, thin patients, male and female, old and young who bathed from once and twice a week to once daily, being convinced at the same time, that they took cold every time, yet followed the practice for months, simply because they knew that it was a popular theory that bathing was healthy, and would keep one from taking cold (!). Bathing is beneficial for the healthy, but it does not follow that it is healthy for the sickly under all circumstances.

1612. Very many children are bathed too frequently, they may, in this way, be maintained in an enfeebled condition. If a child, who is delicate, is bathed all over once each day and has a change of all its clothing at the same time, it will become still more delicate, have less desire to play out doors, be more capricious about its food, especially if it be plain, have a poorer digestion and be very liable to stomach and bowel complaints in addition to a catarrhal disease which is sure to afflict it. All of this can be said of almost every pale, delicate, well dressed child.

The bath, and the air in the bath-room should be of such a temperature as is pleasant to the bather. Immediately after the bath, a small quantity of vaseline should



be applied to the whole length of the spine, from the hair of the head to the hips, then the feet should be anointed. The effect will be very pleasant to the back, and to the feet, especially, if the latter are habitually cold.

**It is not true that a cold bath will prevent catarrhal patients from taking cold.** Not uncommonly is the opinion expressed, that bathing in cold water is a preventive of colds. This is far from being true even in a majority of cases. Usually, the advocates of this plan of preventing colds are individuals in full flesh and in full vigor of health and possessed of a strong constitution.

On the body of the healthy, there is a superabundance of oil secreted by the skin, which is a non-conductor of heat. Such persons can take a cold bath with impunity, as there will be little danger of removing too much oil. After each bath the body will re-act quickly and perfectly. But patients who are thin in flesh, whose skin is dry and "branny" and in a weakly condition, do not possess the strength necessary to overcome the sedative effects of a bath at a low temperature, nor can they loose what little oil they have from the surface of the body without injury.

**1613. Turkish and Russian Baths.** The Turkish and Russian baths are beneficial to patients in full flesh, while those who are in delicate health should never take them, as they rob the skin of its oil, thereby rendering them more susceptible to bad effects from sudden changes of temperature. One bath a week is as many as should be indulged in by any patient. After four or five baths are taken, one every ten to fourteen days will be sufficiently frequent. Great care being taken each time to allow the body to become cool before leaving the cooling room. I know of several instances in which a single Turkish bath paved the way for a cold so severe that it threatened the life of the bather, because of too short a stay in the cooling-room after the bath. The opinion of a majority of my patients who have frequented these bathsa, that a bather, who is liable to take cold easily, should remain at least one hour and a half in the cooling room.

**1614. Vaseline applied to the body after a bath.** Since the fall of 1876, I have recommended my patients who were most liable to take cold after these hot baths, to apply, just before dressing



themselves, a small quantity of vaseline to the surface of the whole body. Most liked the effect of it; a few who were very fleshy, did not noticed any good effect from its application, while others who were sparsely built, were certain that it prevented them from taking cold and prolonged the pleasant and beneficial effects of the hot bath.

**1615. Application of Oil to the Surface of the Body.** Catarrhal patients who are thin in flesh, and whose skin is dry and rough, are liable, because of this dry condition, to take cold easily during the seasons in which there are sudden and great changes of temperature. To such, I have prescribed an inunction to the surface of the entire body. The benefit derived, is an increase of warmth in the body and a decrease of the cold rigors that trace up and down the back.

The beneficial effects following inunction are a little more marked in children than in adults, from the fact that they are applied by a second person with more regularity and a greater degree of thoroughness.

I was first led to experiment with these inunctions, in 1859, after reading an article written by the late Sir James Y. Simpson, of Scotland, given in topics 307 to 325 (a). These topics should be carefully read by every rhinologist.

From the extensiveness of his observations, and the very satisfactory results following the application of oil externally, I resolved to try it for the amelioration of a case that I then (1859) diagnosed as acute phthisis. The effect of the applications was all that could be desired. The profuse night sweats were at once lessened, and, after the fifteenth nightly inunction, entirely checked. The patient slowly recovered, made a trip to Pike's Peak—at that time a place of great attraction in the West—and is at present living in Wisconsin, in robust health.

I recommended several other patients to employ inunction. When they could be induced to use it as directed, the benefits were marked. But the impossibility then of obtaining an oil, the odor of which did not become exceedingly offensive, compelled me to desist from pre-



tribing it, except in cases of children. They remained in the house, and the disagreeable odor offended the olfactories of the parents only, who were ready to endure any discomfort themselves, if it led to the recovery of their children.

We now have an article known as vaseline, one of the residua of petroleum, which is inodorous, and remains while on the body, and may be applied to the most delicate skin, not only without causing discomfort, but producing really a pleasant sensation. The time for a revival of the practice of inunction has arrived, and need not be again driven into obscurity, because of the offensiveness of the remedy applied.

**1616. Method of Application.** The best means to employ for the application is a woolen rubber, made by sewing ten or twelve layers of flannel on the faceside of a cotton or woolen glove; by slipping the hand into the glove, the application is more easily made than by any other means. After it is once saturated from the repeated inunctions, a teaspoonful of vaseline spread on the flannel and held close to the fire until quite hot, will be sufficient for one application, which should be made briskly and with a considerable degree of pressure.

The temperature of the room should be about 90° F., all the clothing of the patient should be removed except the stocking-knit drawers and stockings. The exposed portion of the body and arms should be well and briskly rubbed with the hot woolen rubber, into which the vaseline has penetrated, for from seven to ten minutes on an adult, and half this length of time on a child. After this portion of the body had been anointed, the stocking-knit undershirt should be put on. The drawers and stockings should then be removed, and the remainder of the body treated in the same manner, occupying about the same length of time.

**1617.** Persons thin in flesh feel, immediately after the application, a sensation of warmth pervading the



whole body, the feet and the hands included; but more particularly so if these members have been habitually cold. Chills that course up and down the back between the shoulders are arrested, night sweats abated and very many times soon disappear entirely.

The effect of the friction is to redden the surface by increasing the circulation, which induces a temporary warmth of the body, but I believe it is due to the inunction that the warmth is made permanent. I have had patients try the following experiment, and it indicates that the permanency of the warmth is due to the presence of the vaseline, viz: To rub one extremity with a hot flannel alone, and another with a hot flannel saturated with hot vaseline. The extremity upon which the application of vaseline was made, remained warmer during the day than the one rubbed with the hot flannel only.



## CHAPTER XIX.

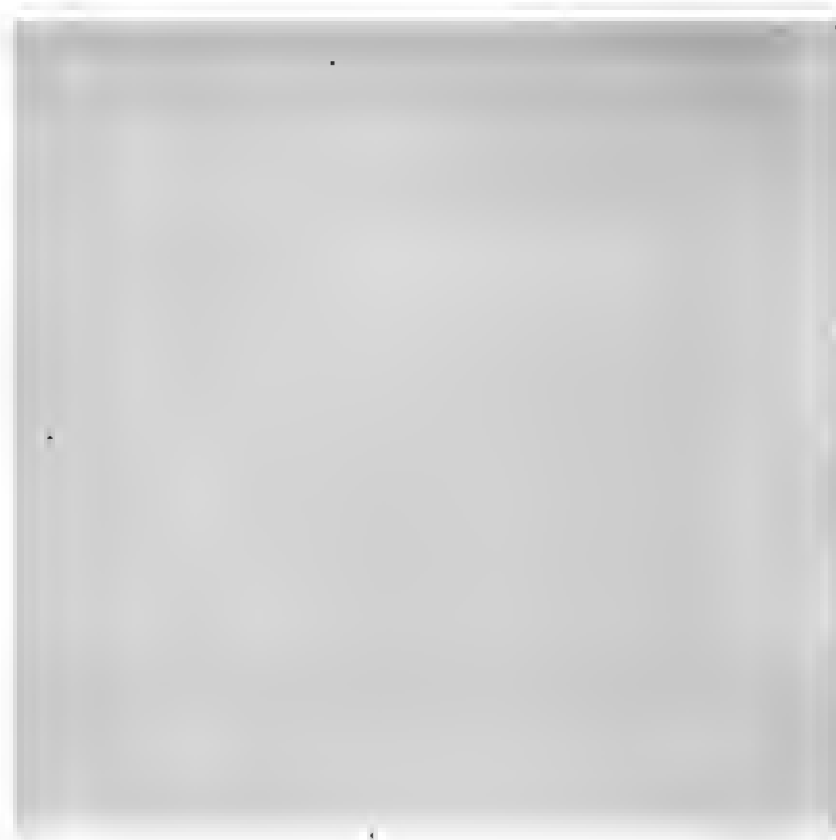
### EARTH SPITTOONS, ETC.

**1618. The Expectoration.** The secretion from the air passages of every catarrhal patient are decomposed before they leave the mucous membrane. If they are deposited in a common spittoon or vessel, the decomposing process will not only continue, but take place far more rapidly, especially if the room is kept warm. Besides being exceedingly disagreeable to the eyes of every occupant of the room, it is very injurious to others in the household and to the patient who requires pure air. All this may be obviated by the use of an *earth spittoon*. It will not only absorb the secretions but will immediately prevent their further decomposition. A vessel containing five pounds of earth will absorb out of sight all the secretion that a patient is able to expectorate in twenty-four hours. It should then be emptied and refilled with fresh earth, which is very easily done.

**1619.** If the patient uses cloths to retain the expectorations, these should be changed frequently, and, if the secretion is mostly purulent in character, they should be burned. The use of a small cup is not recommended, unless a small quantity of earth is first put into it.

**1620.** The chamber or bed-pan containing the alvine and renal secretions should be removed at once, and the vessel thoroughly disinfected after each movement of the bowels.







## PART V.

### DETAILED STATEMENTS OF CASES; AND REMARKS ON DIFFERENT METHODS OF TREATMENT.

An excellent way to obtain a good and faithful portraiture of a disease, is to read cases. It is known by writers, that to give all the symptoms of any one complaint, is to either overstate or understate that which may be observed with regard to the objective and subjective symptoms of any one patient. For this reason there can be no better way of obtaining a living, faithful, and complete picture of a disease—especially one that has several important peculiarities—and of learning the distinctive characteristics that are to determine the method of treatment, than by studying the phases which present themselves, as shown by individual cases at various ages. These are the objects I have in view in presenting these detailed statements of cases. SECTION I, will be devoted to this subject.

SECTION II, will be devoted to remarks of a miscellaneous character, in reference to different methods of treatment, and to remedies.



## SECTION I.

### Detailed Cases of Catarrhal Diseases of the Nose, Throat and Ears.

In this SECTION, I will report the histories of patients—aged from infancy to old age—who were afflicted with catarrhal rhinitis. With these histories I will also detail the treatment given them, and the results, whether good, bad, or indifferent. The cases detailed will be such as seem to me to be instructive. The treatment of many of the cases—whose histories have already been related in different portions of this work either wholly or partially—will be given because they are interesting. The method of treatment will be such as I employed at the time I had the patients under my care; and the various times will embrace those periods of my medical practice, in which I made changes in the methods of local and constitutional treatment. I will comment upon these methods freely, and will show their imperfections. It is seen that a portion of this SECTION will contain a confession of the imperfections of my practice; it will also be seen that I do this to prove conclusively, that my present method of practice is, certainly, much the preferable one.



## CHAPTER I.

### REPORTS OF CASES AGED FROM INFANCY TO THE TENTH YEAR.

**1621. Acute Rhinitis.** An infant *five days* old was brought to me July 4th, 1886. Both nostrils were closed with yellow pus. The cause of this condition was the fact of its being bathed in cold water. The child could not nurse, because it could not breath through its nostrils. It was crying continually, day and night.

**Treatment.** Its nostrils were sprayed with the No. 6 spray producer, as it laid on its mother's lap, employing not more than 5 lbs. air pressure to the square inch; using warm vaseline alone. Of course, the applications could not be made very long at a time, as the child, in spite of being held quite firmly by its mother, squirmed so much that the stream was directed but for an instant at a time into each nostril. The efforts at clearing the nostrils were continued at intervals of a few minutes, as often as the child discontinued its severe struggles. It took over half an hour to clear the nasal passages so that the child could nurse. When it did begin to nurse, some of the milk came out of its nostrils, showing that the inflammation had been severe enough, in the few days that it had lived, to produce a paralysis of the soft palate. I directed that vaseline should be rubbed on its nose and ears.

The infant was treated the next day in the same manner. I did not see it again, and learned that it died in about three weeks afterward in a severe spasm, it having strabismus before dying. After it was dead its mother noticed pus flowing from its left ear, demonstrating that it died of ear disease, induced by the nasal catarrh.

Had its catarrh been treated every day for a few days, and every other day for a few weeks, I have no doubt that it would have recovered from the effects of the murderous cold bath.

**1622. Acute Rhinitis.** An infant one month old, was brought



to me in August, 1885. Both of its nostrils were closed by swollen mucous membrane.

**Treatment.** Both nostrils were sprayed with spray producer No. 6 (while the infant laid upon its mother's knees) using about two grains of the eucalyptol mixture, (850) in half a drachm of vaseline. About half of this mixture was wasted by the child turning its head away from the stream. This was repeated daily for five days; at the end of which time the little fellow could nurse as well as any child. I had occasion to treat him one time in the spring of 1887, but not since that time. Vaseline was applied to the bridge of the nose every night when the child had a cold.

**1623. Acute Rhinitis.** An infant four months old, was brought to me in February, 1889. Its nostrils had been closed for about two weeks.

**Treatment.** Its nostrils were treated by passing a camel's hair brush, that had been dipped in a solution of nitrate of silver,  $\gamma$  gr. ad  $\bar{3}$ j, along the floor of both nasal passages; but one application was made to each nostril. The pain was not great. I recommended the application of goose fat to the bridge of its nose. I did not see the child again.

**Note.** I do not think that the nitrate of silver had the least beneficial effect; nor could it in the strength applied, do much harm. For goose grease was by far the better, and most efficient remedy, as the salt in the mucus changed the nitrate of silver into an inert chloride of silver. The practice was not good.

**1624. Acute Rhinitis.** An infant seven months old, (August, 1885) "This little boy has not given me the least rest, day or night for at least three weeks. He is crying all the time, or he is fighting a long time." This was said by the nurse of the child. The outside of the nose was very red; it looked as if it was erysipelatous.

**Treatment.** Oxide of zinc ointment was prescribed to be applied immediately after the little fellow's nose was wiped. I tried to spray the nostrils with a very small portion of the following: lodine, gr. j, iodide of potassium, grs. xx and water,  $\bar{3}$ j. I succeeded in getting four or five drops into each nostril.

The next day the child was brought to me. The outside of the nose was better, but the breathing was no better. I then tried to put a little sweet oil and extract of opium up each nostril by a camel brush, but did not succeed. The application of the compound iodine was again made.

This course was continued for eight more days, at the end of which time the child took pneumonia, and died.

**Note.** This child should have been treated as the following one was.



**1625. Acute Rhinitis.** Lucy C., *et.* 7 months, was brought to me May 10th, 1887. Both nostrils were closed, and had been so for nearly two months. The child had been very fretful, crying almost constantly, day and night. It had its gums out, and had been given paragoric almost hourly for three days and nights.

**Treatment.** The No. 6 spray producer was half filled with plain vaseline, this was thrown into the left nostril alone, giving the child a rest once in a while. The same quantity was thrown into the right nostril. The following mixture of quinine was prescribed:

R.	Quininæ sulph.,	3j	gms.	3 900
	Tannin,	grs. iiij,	"	0 195
	Ext. glycyrrhizæ, grs. xx,	"	"	1 800
	Tinct. opii camph.,	℥j,	"	31 100
	Aquæ	℥j,	"	62 200

Mix. Dose, two teaspoonfuls every six hours.

Vaseline was applied to the outside of the nose, and on the neck and ears.

The same local applications were made for five days daily, then for two weeks. The child has remained in good health since that time.

**1626. Sub acute Rhinitis.** (April 20th, 1878.) Lillie A. D. *et.* 18 months, light hair and skin; she was quite small for her age; had night sweats every night for about two weeks. Both nostrils closed, muco-pus flowing from them. Her eyes had been very weak for about three months, so much that she could not be taken out in the carriage for an airing. As soon as she was taken out she began to sneeze, and continued to do so for ten or fifteen minutes, after which she fell asleep, while crying severely, apparently exhausted.

The child had a large seton in the back of her neck. Tinct. of iodine had been applied to the mastoid processes for two weeks, and something had been put in each nostril that caused her to sneeze severely for some time after each application, after which she fell asleep, as usual, as she always did after her attacks of sneezing.

The spray producer No. 1 was tried, but it made her sneeze so severely, that I discontinued it at once. Vaseline was applied to the bridge of the nose, and all over the face and neck, the seton was removed, and this part and the mastoid processes were dressed with vaseline. "Only this and nothing more" was directed to be done to the child for three days, at the end of which time she was to be brought back to me.

On her return she had improved in every respect. Her eyes were stronger, her nostrils more open, the seton wound had nearly healed, the crust of thickened or dead skin on the mastoid processes partially removed, and her appetite much improved.



I directed that the same course should be pursued, and to bring the child back to me in two or three weeks.

I did not see the child for nearly two years. Immediately after leaving me they took her to their family physician, who insisted on taking her to a friend of his for treatment of her nasal troubles. The treatment by the latter physician was continued about four or five days with an unfavorable result, her eyes becoming weaker, and all of her abnormal symptoms returning. She was then taken to an oculist, who had her under care for about four months. At the end of this time all medical treatment was discontinued, and the application of vaseline, as I had directed, was again instituted. Under this method the child rapidly gained health.

The beneficial effect of vaseline, applied to the outside of the nose, was never more plainly demonstrated than it was in this case, also demonstrating the intimate relationship between the integument and the mucous membrane, as practically shown by Sir Jas. Y. Simpson, in topics 321 to 325.

Note. This child was the victim of quite a number of circumstances.

**1627. Chronic Rhinitis.** Sadie F., *æt.* 7 years. (Feb 10th, 1883). Very light hair, white skin, very small for her age. She complained of excessive headache; both ears were affected with otorrhœa; but her hearing was quite good. Her tonsils were much enlarged. The nasal passages were almost completely closed with thickened mucous membrane. Her breath was quite offensive. She had been wearing glasses because of myopia. Her alvine evacuations were very offensive. She had incontinence of urine, wetting the bed every night during the last three years, for which she had been under medical treatment, without the least benefit. The urine was very highly colored, and always stained the chamber.

**Treatment.** The local treatment consisted of the application of vaseline and the eucalyptol mixture, as mentioned in topics 850 to 853 using the spray producers Nos. 4, 5, 1 and 2, in the order named. I also prescribed the quinine mixture seen in topic 830, and that seen in topic 832. I had her shoes and stockings taken off, to enable me to apply electricity to her feet, and found them very cold and her stocking almost wet with perspiration. I placed the negative pole at her feet, and applied the positive pole up and down her spine, from the occiput to the sacrum, using a strength of current strong enough to be slightly perceptible, but *never the least unpleasant*.

This course was continued daily for three weeks, and every third day for twelve weeks. She had about four treatments during each October and April afterward for three years.

She began to improve at once, and in three weeks her nightly



emity ceased. In the first three months she gained 15½ lbs. in weight, and a more wonderful change I have never seen. At the end of the second year of her treatment she had no more use for her spectacles.

**1628. Chronic Rhinitis.** February 14th, 1883. Tillie O., A. 10 years. Her left nostril was completely closed by a deflection of the septum nasi and an enlarged condition of the inferior turbinated process. A physician had operated on the septum, but left it in a far worse condition than it was before he attempted a "cure."

**Treatment.** I gave the usual local treatment, using the spray producers Nos. 4, 5, 1 and 2, in the order named, and as her bowels were constipated, prescribed the lax compound (863). This course was continued daily for twelve days. On the 26th, I passed into this nostril a piece of slippery elm bark, about two inches long, and about of an inch in diameter. A stout linen thread was fastened to the inner extremity, and wrapped around the left ear. The tent did not produce the least irritation. She received daily treatments for about three weeks longer, and the tent was taken out every third or fifth day, and a larger one put in its place. On March 18th, I put a small rubber tube into the passage, fastened with a thread as before. The tube was covered with vasoline before it was placed in the nasal cavity.

The patient is still under observation. The septum has greatly improved. She inserts the rubber tube into her nostril whenever she feels it "becoming narrow." I think the case will require the removal of a small portion of the inferior turbinated process.

**1629. Chronic Rhinitis.** February 2nd, 1883. Stella W., A. 9 years, a strong, hearty girl with black hair. "She has breathed through her mouth ever since she was born." This case was seen by Dr. P. W. Logan, of Knoxville, Tenn., to whom I called attention to the want of development of the upper jaw, and also that of the nose, but the lack of development of the latter organ was less marked. Such conditions are frequently seen by those who follow rhinal practice. The child's tonsils were so much enlarged that half of the usual breathing space was occupied by them.

**Treatment.** The spray producers Nos. 4, 1 and 2, were employed as named, using the eucalyptol mixture and vasoline. The lax compound was prescribed. Galvanism was applied to the hands (negative), the positive pole was applied to the face and nose. The patient is still under full and spry treatment, and has improved very much. She has grown, during the last four years, about six inches. Still, there is a marked want of symmetry in her face, and I fear this will always exist.



**1630. Trophic, or Profuse Catarrh.** The following case is reported by Prot. Hiram Christopher, of St. Joseph, Mo.

In July, 1883, Mrs. C—, brought her daughter, aged 6 years, for treatment. She is of slender frame, has brown hair and eyes, not of a robust constitution, mixed temperament, small bones, and thin in flesh. She had profuse discharge of muco-purulent matter from the nostrils, and even when cleared by herself, much was removed by the spray producers, by being blown from the nostril not at the time under treatment. There was impairment of hearing in the left ear, requiring a high tone of voice to be heard. The throat was but slightly affected, and the tonsils a little enlarged. The condition of the throat was that which is generally, if not universally found in children of her age, who have had hepatic indigestion.

**Treatment.** Spraying with carbolized vaseline daily for two weeks, then 3 times a week for one week, when she was well. A few doses of calomel were given during the time, whenever the pulse indicated its employment. The quantity of muco-purulent secretion gradually decreased with the progress of the time, and there was no return of it after months, and has not been since, beyond a slight discharge, which is always relieved after a few treatments. But being of delicate constitution, she falls back more frequently in her digestion than in her catarrh; and these lapses do not receive the attention they require. These occasion a re-appearance of muco-purulent matter from the nose; but the lapses readily yield to the same plan of treatment.

**1631. Atropic Catarrh.** Reported by Dr. Hiram Christopher, of St. Joseph, Mo.

A little girl, aged 8 years, having light hair, blue eyes, a fair complexion; not robust, of a mixed temperament, and of a somewhat strumous diathesis, was brought for treatment in July, 1883. She had been under treatment for catarrh for about four years, receiving, however, only constitutional treatment, and chiefly by the iodides of potassium and iron, as I learned from the history of the case. For the previous year she had been under constant treatment; but without benefit. She had not slept with her mouth closed for a year, and rarely closed it during the day, because of obstructed nares. On examination, the nares were found closed with hardened secretions, and to the extent as to require probing before a spray producer could be passed into the nose. The throat was but little affected, the tonsils were slightly enlarged, but occasioned no difficulty in breathing. Her general health was fair, and hence no constitutional remedies were used.

**The Treatment** was begun on the 10th of July, and continued



daily until the 17th, when she was taken by her mother to Iowa, visiting relatives. At this time she slept with her mouth closed, so much had she improved in a week. She returned for treatment on the 1st of August, and continued four days, when her mother again made a visit out of the state. She returned for treatment again on the 23d, and then continued to the end of September, being treated daily and at intervals of two or three days. She was completely well in Oct.; but treatment was continued at longer intervals as a prudent measure. There was a steady improvement from the beginning, and there has been no return since, now Dec. 1887.

As the treatment was pursued, using carbolized vaseline in a No. 2, the hard secretion gradually softened, and never became more fluid or softer, resembling freshly made "Dutch cheese." The nares, at the beginning of the treatment were small in calibre; at the close, large and open, and sufficiently large to allow the introduction of the index finger.

Such cases as this had as well be called Dry Catarrh, as there is no flow of abnormal secretions.

**1632. Chronic Rhinitis; enlarged tonsils.** The following case is reported by Dr. R.W. Wilcox, of New York City, at my request.

J. D., a girl of 8 years of age, had suffered ever since her recollection from nasal catarrh. Her general health was good. She was almost constantly using her handkerchief, she breathed entirely through her mouth at night, and partly so by day. There was some pain through her forehead, especially at the times of the repeated colds. The voice was partly nasal, and snoring at night was frequent. She had no symptoms referable to her ears. The nasal mucous membrane was in all portions markedly thickened, blood vessels enlarged, a profuse muco-purulent secretion was present, with dried matter in the superior nasal passages. Both tonsils were so much enlarged, that in quiet respiration they, with the uvula, formed a nearly complete barrier. There were some crypts, but no cheesy matter could be found. Although very vascular, there were no general symptoms indicating an acute inflammation of the tonsils. It was intended that the nose should be treated, and later, after excision of the tonsils, the nares and pharynx. Examination by posterior rhinoscopy was impossible. After a course of treatment by the spray producers, the tonsils began to be reduced in size with relief from mouth-breathing, snoring and nasal voice, while the condition of the nose was greatly improved. It was then determined to persevere, and much to the surprise of the writer, at the end of five months the tonsils became nearly normal in size, and the symptoms and signs of catarrh had disappeared. About a month after the cessation of treatment, she passed through an acute attack of pharyngitis, in which the tonsils did not participate. This



result as regards the tonsils was so unique, that it is thought to be worthy of record. There is now under observation a similar case, in which the same result is likely to be obtained. Obviously a method which will reduce the tonsils to their natural size without excision, is far preferable to the operation.

**1633. Chronic Rhinitis, with Vocal Disability.** Chas. E. S., *et.* 9 years, was brought to me by his mother on June 20th, 1876. The boy was very small for his age, appearing not more than 6 years old. There was a peculiarity about his front teeth, that drew my attention as soon as he entered the office. They were all decayed down to the gums and turned black, giving the appearance of a number of small pieces of charcoal in the front of his mouth.

The saliva was flowing down his chin continually, his mother said that it flowed this way during the night also, and had done so all his life.

When he was born he was washed in water that was too cool, this, the mother thought, was the first cause of his sickness. He has been a "nervous child" all his life, would startle and run to his mother when the door slammed.

On examination it was found that he had large incrustations in each nasal cavity, and that he had otorrhoea in both ears, and had a slight strabismus of the left eye. "When he is frightened his eyes are much more crossed."

When he drank water or milk it came out of his nose, and sometimes out of his ears also, showing a marked paresis of the *veum palati*.

It was utterly impossible for me to understand a word he said. No one but his mother could understand him. Every tone was strongly nasal, and had that quality that is given to the voice when speaking with loose lips. The little fellow was very passionate, and when he did not get what he wanted would attempt to bite his mother. His mouth was open all the time, which gave him a stupid appearance. His eyes were also much affected, it being almost impossible for him to open them in the morning, on account of the secretion agglutinating the eye lashes of the upper and lower lids.

I undertook the **treatment** of the case upon consideration that I should have it under control for five years. This is just *one-half* the time that I should have named.

After a few visits my little patient submitted very quietly to the treatment. I employed the warm air spray producer, figure 124, this was used to treat his nose, and inflate the Eustachian tubes. As his alvine discharges were excessive totid, I prescribed the mixture given in 832, and directed that he be given a small charcoal cracker after each meal. His mother had been in the custom of bathing him



every day, this was stopped, and he was bathed only once in three or four weeks; his feet were kept clean by the use of vaseline. His body was rubbed with vaseline every night, and he was to be allowed to play out-doors every dry day, a luxury that the boy did not know how to enjoy for several weeks, as his mother had kept him in the house all his life. The galvanic current, continuous, was applied up and down his spine every day, also around his face. At first this frightened him, but by coaxing and by a mild current, I was soon enabled to give him all the strength that was needful.

This course was continued daily for two months, then three times a week until October.

At this time his appearance was markedly improved, he did not breathe through his mouth during the day or the night, he had grown nearly one inch in height; had gained 17 pounds in weight, and had lost the appearance of an animal, that was so marked when he first came to me.

I did not see him until the following April, at which time he was brought to me when under the influence of a very bad cold, that again brought on mouth-breathing.

I refused to treat the patient until the father again signed an agreement to bring the boy to my office at such times as I should designate, and that he should pay in advance the amount that I thought would be required for each quarter's treatment. As this was not agreed to the patient left me. I have not heard what become of him or how his health is at present.

**1634. Another case of the same kind.** Katie M., *et.* 8 years, was brought to me June 27th, 1876. This case was afflicted in very much the same way as the one given above, and was treated in the same manner. The patient came to me through the influence of Dr. A. B. Barbee, of this city, and lived near his residence. When the weather was so bad that her mother could not bring her to my office, Dr. Barbee applied the remedies, using my spray producers and the same remedies.

This patient was under my care for several years, and made a complete recovery. Her speech was so indistinct that no one but her mother could understand her, and even she was unable to do so sometimes. She is now a large, fine lady, and is teaching school.

I have had but few of these patients, seven in all; but I would have no hesitation to undertake the treatment of even the worst kind of a case, and would expect a complete recovery. It is not right to undertake the treatment of cases of this kind for a less term than *ten years*.



## CHAPTER II.

### REPORTS OF CASES AGED FROM TEN TO TWENTY YEARS.

**1635. Chronic Rhinitis.** Theo—, æt., 11 years, (Sept. 14th 1867). There had been for five years an excessive discharge from his nostrils. He had always taken cold very easily, but as a child he was not in the least averse to going out in the damp, cold or snowy weather. Upon inspection it was seen, that his nostrils were lined with incrustated muco-purulent secretion. His breath was very offensive.

**Treatment.** The nasal passages were partially cleansed by the catheter nasal douche, figure 65; used as stated in topic 570. The effect was quite pleasant. I then passed a camel's hair brush, which had been dipped in a solution of nitrate of silver, grs. v, ad. ℥j over the surface that had been covered by the crusts. I directed him to gargle with the following: R. ammonia, mur. ℥j, ext. glycyrrhizæ, ℥j, aquæ, ℥vj. M. He was to take a teaspoonful in his mouth, then throw his head backward, gargle it as long as he could, and then swallow it. This was to be repeated every day. Every other day I employed a steam spray producer, with a weak solution of iodine. This course was continued for two weeks daily, then for two months more, every other day. At this time I prescribed cod liver oil and discontinued the local applications.

In November, 1869, I gave him a few local treatments, using the catheter nasal douche daily for two weeks. The first few treatments gave him great relief, but after the first week they did not improve him. I again prescribed the cod liver oil, and discontinued the local application, with the exception of directing him to cleanse his own nostrils by drawing up warm salt water from his hand, as directed in topics 533 to 537.

In October, 1872, he again came under my care. I then learned



that while he was using the warm salt water from his hand, he kept his nostrils in pretty good condition, but just as soon as he discontinued this practice, they began to fill up again.

At this time I sprayed his nostrils with cosmoline and carbolic acid, using gr. x of the latter, to 3 j, of the former. While the first portion of the spray from the instrument smarted quite keenly, the ultimate effect was pleasant. This course was continued daily one week, at which time his nostrils began to experience painful sensations, which he attributed to the spray. I then treated him but every other day for three times.

In 1878 he visited me and informed me that the spray used six years before had a good effect, but was much too strong. At this time I applied vaseline and the eucalyptol mixture, as stated in topic 850, every other day. "Oh, doctor, the last application was as gentle as a warm spring breeze." This was his expression on his return visit on the next day. This application was continued daily for four days, then every other day for three weeks; then about twice a week for two weeks, at which time he discontinued, feeling "well."

Up to the fall of 1886 he was treated about three to five times each fall and spring. I gave him no constitutional treatment after November, 1869. This patient will require fall and spring, or fall or spring treatments, as long as he lives. I have stated that to him repeatedly.

**Note.** The effect of the steam spray producer was to make him much more liable to take cold after leaving my office, as well as to cause the colds to more easily make his throat sore, after taking a cold.

**1636. Chronic Rhinitis.** Willie—, æt. 19 years, April 23d, 1868. Subjective symptoms; pain in the upper part of the nose, and over the eyebrows, especially on the left side. Objective symptoms: left nostril almost entirely closed by thickened mucous membrane, a stream of muco-pus running down the posterior wall of the pharyngo-nasal cavity. There was no crusts in either nasal cavity. He had used the common nasal douche, which had caused severe pain in both ears.

**Treatment.** I employed the catheter nasal douche to cleanse the left nasal cavity. Forced the vapor of murate of ammonia through both nostrils. This method is fully discussed in topic 584. This course was continued for four days. As his throat was sore at the time, I recommended the following gargle:

R. Ammonia mur.	3j	gm.	7 80
Fl ext. glycyrrhizæ,	3l	"	31 10
Aquæ,	3vj	"	180 60

M. Sig. Take one teaspoonful as a gargle, three times a day.



April 28th. The muriate of ammonia vapor was employed daily for one week, and then twice a week until the latter part of May.

He visited me again on the 13th of October, 1877. He then received treatments two and three times a week until September 21st. On this occasion he received the usual spray of vaseline and eucalyptol mixture, as mentioned in topic 850. He has recovered completely, so he says, but I insisted that he should receive a few treatments at each change of the season.

**1637. Chronic Rhinitis.** Miss Mary W., *æt.* 17 years. On April 20th, 1868, she consulted me for great difficulty in nasal respiration; she had been in this condition since the previous fall, and had used quite a number of popular remedies which gave but temporary relief. Objective symptoms. The mucous membrane of the nasal passages was excessively congested, and was, in places, coated with inspissated mucopurulent secretion. Both tonsils were enlarged. In the pharyngo-nasal cavity, there was a large quantity of greenish yellow secretion; this came off every morning, but occasioned so much disturbance, that she was greatly exhausted in the efforts to remove it. She was quite anorectic, her appetite was poor; her temperature in the mouth was  $102^{\circ}$  F; she slept but little at night.

**Treatment.** The catheter nasal douche was employed, using warm salt water, 3j ad. Oj with the addition of grs. v. permanganate of potassa. After the cleansing the following solution was applied to the mucous membrane of the nasal passages, upon which the secretions were seen to have adhered. R arg. nit. grs. v. ad. aquae 3j.

This course was continued daily until the 19th of May. After this, twice a week until July 2d, at which time the treatment was discontinued. The effect of the douche was not nearly so beneficial towards the end of the treatment as at first. The permanganate of potassa was soon taken out of the solution, and grs. x of ext. opium substituted. I treated her again on the 4th of February, 1878, making applications every other day, until the 13th of the following April, employing the usual vaseline and eucalyptol treatment.

On July 7th, 1884, I again gave her another treatment, this was repeated once a week during the month. At this time I treated the child, aged 7 years, for a slight rhinitis.

**1638. Chronic Rhinitis.** Madison F.—, *æt.* 13, September 12th, 1870. Objective symptoms. Excessive redness and some swelling of the outside of the nose. The left nostril was almost completely closed by the thickened inferior turbinated process. Both tonsils enlarged, the uvula elongated and enlarged. Had been blowing crusts from his nostrils for three years.

**Treatment.** The nasal passages were cleansed by use of the



catheter nasal douche. The tonsils were injected by the following solution: R iodine, gr. j, iodide of pot. grs. xx. and water ℥j. This was also applied by a camel's hair brush, at each of the visits. The *lanix comp.* was proscribed to be taken three times a day.

This course was pursued daily for three weeks, then three times a week until October 3d. The result was not satisfactory.

He next visited me September 6th, 1873. At this time I learned that his breathing through his nostrils remained unimpeded while under treatment, and that the same condition as first existed, returned during the holidays. On this occasion I gave him the usual treatment with vaseline, using about 5 grs. of carbolic acid to the ounce of vaseline. The effect was an improvement on the previous treatment. He received eight treatments, one every day.

He was again treated October 12th, 1885. This time with the vaseline and eucalyptol mixture, receiving a treatment twice a week until November, 25th. He again received treatments May 9th, 16th, 23d and 30th, 1887.

**1639. Chronic Rhinitis and Stomach Vertigo.** Frederick T.C., æt. 19 years, March 5th, 1872. He had a discharge from his nostrils since he was 12 years old, but the flow was always greatest fall and spring. He was greatly troubled with vertigo and "lunny spells," feeling as though he was swinging in a large swing. When this sensation commenced, he almost always felt a little sick at the stomach. He was almost constantly having eructations from his stomach at these times. "If the wind passed off my stomach in large mouthfuls, my head would not be troubled; but if it did not, then I was sure to have one of my spells." He blew out a large crust from his left nostril almost daily, and sometimes a small one from his throat about every other day. This crust always made him sick at the stomach before he could get it away.

**Treatment.** The catheter nasal douche was employed once daily for a week, using just enough water to cleanse the passages. The spray producers Nos. 3, 4, 5, 1 and 2, were used to throw a spray of the following: R Ammonia, mur., grs. ij; Tr. iodine, gtt. ij., glycerine and water, aa, ℥ss. M. About ten to fifteen drops used with each instrument.

He was treated daily for seven days, then once every other day for three weeks, then twice a week for the same length of time.

He called on me in the fall, and I then sprayed his nasal cavities with cosmoline, which greatly pleased him. At this time he received almost twenty treatments.

In the spring of 1873, I gave him another course of treatment; but this time with vaseline. He received about ten applications, once



every other day. He had not experienced any of the peculiar swinging sensations, since April, 1872.

He received three treatments in the spring of 1875, and since that time snuffs warm vaseline into his nostrils whenever he experienced any sensation of a cold in the head.

He visited me in 1884, and brought his wife for treatment. I then examined his nasal cavities, and found a small increase of secretion, for which I gave him a few treatments.

**1640. Chronic Rhinitis.** Miss Irene R., *æt.* 18 years. Called October 28th, 1872. Complains most of headache in the temples and across the forehead. Her throat has been sore for nearly three weeks. She could not breathe through her left nostril at all during the night, and but slightly during the day. Her left eye has been weak for nearly two years, and has had glasses fitted to her eyes because of inability to read or sew. She has lost flesh lately, and during the last three weeks has had night sweats.

Upon examination I found her tonsils both enlarged, but the left one much the larger. There was an excessive quantity of secretion seen in the pharyngo nasal cavity. The inferior turbinate process of the left side was greatly enlarged, and an enlargement of the nasal septum opposite the enlarged process. Her pulse was 112 per minute; temperature, 101° F. Her bowels habitually constipated; renal secretion scanty and high colored, often coloring the chamber.

**Treatment.** Sprayed the pharyngo-nasal and nasal cavities with the following solution. B. muriate of ammonia, grs. ij; tincture of iodine, gtt. ij, glycerine and aqua, aa ʒ ss. M. Ten drops was thrown into these cavities by each of the spray producers Nos. 4, 5, and 2. Prescribed larix compound. Oct. 29th. The effect of the treatment was good, but a little painful at first. The applications were repeated daily until Nov. 2d. On this day I passed a slippery elm tent into the left nostril, leaving it there for about half an hour, when this was substituted by a larger one, which she took home with her.

Nov. 5th. The nasal tent had the effect of opening the left nostril, which relieved the patient of the pain in the forehead and temples. The application of the same sprays were made, and a larger tent inserted into the left nostril. If this should produce excessive pain, it was to be removed temporarily, and then inserted again.

I did not see the patient again until Nov. 18th, 1872, at which time she returned for more local treatment. The enlarged turbinate process had subsided in about a week after her last visit to me.

Vaseline and eucalyptol was used in the spray producers this



line, which gave her much greater relief. She received fifteen treatments at this visit.

Oct. 12th, 1884, she received five treatments; and then again in April, 1886, three treatments. In my opinion she will require local treatments at the fall and spring seasons of the year, as long as she lives.

**1641. Chronic Rhinitis.** Miss Hattie G., *et.* 19 years, was brought to me by her father, Oct. 12th, 1875. She had no complaint except the excessive secretion that came from both nostrils. She was in good health in every other respect, being about 20 pounds heavier than young ladies of her age generally are.

**Treatment.** I employed the catheter nasal douche, using about two ounces of warm salt water. This removed two large crusts, and quite a quantity of dark green secretion. I then sprayed the pharyngo-nasal cavity with the *pinus canadensis* compound alone, and the posterior nares with about 10 drops of this mixture in half a drachm of vaseline. The anterior nares was sprayed with vaseline alone. Each of these applications produced a slight smarting sensation, but the patient did not complain of it. Very many of my patients had an idea, that if the treatment did not produce some pain, it was not doing as much good as it might if a slight smarting sensation followed the applications. Such erroneous sentiments induced me, for many years to push the treatment to the extent of producing a small degree of pain.

Oct. 13. Examination of her nasal passages proved that there were no incrustations, and the quality of the secretions were less purulent. The sprays alone were used.

She was treated once daily until the 24th, then three times a week, until the 18th of November. The effect of these treatments were quite beneficial.

November 2d, 1882, she returned for additional treatments; the incrustations were again forming, and she had severe headaches in the top and back of the head. At this visit she complained of having a cough, which commenced last April. She was now weighing less, by 41 pounds, than she did seven years before.

I gave her the usual spray treatment, but did not use the catheter nasal douche to remove crusts from her nasal passages, knowing that she could blow them out with ease in an hour or two after the application of vaseline with the spray producers Nov. 4, 5, and 2.

She received eighteen treatments, and in four weeks had gained nearly 17 pounds in weight. She was treated again in April and October, 1883. Since that time she has been entirely well.

**1642. Chronic Rhinitis** Mr. B. W. P. Jr., *et.* 20 years.



Called May 25th 1877, for treatment to relieve excessive headache, a morning cough that frequently caused him to throw off his breakfast. Otherwise he was in good health. He had been smoking lately to greater excess than usual, and had been using Sanford's catarrh cure. I said to him that the tobacco and "Sandford's cure" greatly aggravated his troubles, and that he would have to discontinue the use of both, which he did.

He was treated once daily for three days, and then three times a week for two weeks. I did not see him again until April, 1886, at which time he had a tonsillar abscess of the left side. After recovering from this; he has since remained in a healthy condition.

**1643. Chronic Rhinitis, with Vocal Disability.** Miss Susie B. *et.* 20 years. She consulted me Sept. 23, 1881. The following is her history of her case:

"Eight years ago, I was troubled with a numb and tired feeling in the larynx, which often prevented my singing for a few weeks at a time; this continued at long intervals for about five years. Two years ago I took a violent cold which resulted in catarrh; it caused no headache or pain of any kind. I have ever since been annoyed by a secretion above and back of the mouth, which choked me if not quickly removed. I taught during last winter in a badly ventilated school room; the room was almost always filled with coal smoke. My lungs soon began to feel as if they were filled with dust. After touching all day I was often a little hoarse at night.

"First of May, 1881, my voice began to break on high notes, and in a short time it shook on the low notes if they were prolonged. By the first of June, my voice was so altered in speaking, as to be unrecognizable, being thick and husky. My lungs were tired and ached, particularly in the lower part.

"On July 7th, I rode sixteen miles in the hot sun, reaching shelter just at noon. I threw up my dinner soon after eating. A rash appeared on the joints and began to spread; but on my going into the air it disappeared; my lungs felt as if they were full of the same rash. It seemed as if I should suffocate. For twenty-four hours my heart beat so feebly that it required tiresome effort to breathe. The next day both hands were swollen and stiff; the right was worse than the left. In less than a week, I had a similar attack after riding; except that there was no rash or nausea, and it began with palpitation. During the congestion there was a severe pain in the lungs and throat and constant coughing.

"Since that time I have often risen in the morning and found hand or lip swollen. The upper part of my spine is very weak



slightly sore to the touch. After sewing, a spot in the right side of the chest aches; it is not always the same spot. When I am tired my heart aches as if it were pinched. I am constantly troubled with palpitation, especially on a hot day. I always feel better on a rainy or cool day. When my left arm is swollen there is a feeling in my heart as if it were tightly pinched. The feeling in the arm I cannot describe, except that it feels nervous. Excitement wearies me, and then my hands lips and limbs tremble. I almost always have some fever at the middle of the day. Hands and feet are always cold. Palpitation is always accompanied by a soreness in a spot 2 or 3 inches directly under the left arm. Pressure upon that spot causes numbness of the left arm and hand. For 6 or 8 years I have been troubled with irregular breathing. When I am tired, it seems almost impossible to take a long breath. Cold chills often start at the back of my neck, and run quickly over the whole surface of my body."

There was nothing unusual in the treatment given her. One time I employed a current of electricity—galvanic—that nearly made her faint; but did not produce the least pain. After this the electricity had a bad effect on her.

#### 1644. Chronic Rhinitis with Symptoms of Epilepsy.

Mr. Wm. H., of Cairo, Ill., æt. 19 years, who was sent to me by another patient, Feb. 18, 1873, complained of excessive dizziness. He says:

"I felt dizziness eighteen months ago, or a little longer than that, from stooping. I was then chewing tobacco about six months, and chewed it vigorously, about one and a half ounces of fine cut a day; soon after this I commenced increasing the quantity until I disposed of two ounces daily.

"About six or eight months ago this dizziness grew worse; did not do anything for it, thinking it a common thing. About six weeks ago I began to think it an uncommon thing. I took medicine from a physician to open my bowels, also a tonic and "nerve medicine." My physician thought that the valves of my heart were the origin of the trouble, and as soon as they acted normally—which he was sure they would do in a week or ten days—I would be all right again. During the last three years, I had felt a pain in the upper part of the throat (soft palate), for which I used to eat liquorice. Four weeks ago I had a little pain in the left eye, at this time I looked in the looking glass, and noticed that the pupils of my eyes were larger than natural, my mother then observed the same, and that one pupil was larger than the other, that of the left being the larger, (now Feb. 28, 1873, the right was the larger). On the 15th of Jan. I felt dizziness in my head; on the first shock, I had a blindness of the eyes, everything was whirling around. I was in bed then and had been lying on my back,



and felt it as I raised up. Ever since New Year's I had a cold in my head, and my throat felt raw, also, had headache, I was constipated at the time. About three days (Friday) after the first spell I had a second shock, this happened while weighing hay; commenced right after dinner, and felt a peculiar feeling the remainder of the day. After I got asleep, I felt as if I was falling—in a dream—felt the same way on Saturday; on Sunday I felt worse, had but little headache."

Feb. 18, 1873. When he presented himself he looked very much frightened, the right pupil was much larger than the left; but both were enlarged beyond the natural size. He complained of a constant dizziness and numbness.

The pharyngo-nasal cavity of this young man had an oedematous appearance, after it had been cleansed of a large quantity of mucus. The soft palate was so debilitated that he could not raise it so as to close the passages from the pharynx to the pharyngo-nasal cavity, and frequently fluids and solids would pass into the nasal passages.

As his hair was very light, indicating weak mucous membrane I had no hesitancy in saying that tobacco had caused most of these symptoms, by producing excessive congestion.

In the treatment of this case, I made but little headway, as I did not have the vaseline or cosmoline to combine with the potassium permanganate and carbolic acid. Every application seemed to help him for the time being but that was all. I had him under my care for about six weeks, then gave up the case. Had I such a case now, I could in six weeks time drive away every unpleasant symptom. I have placed the history of the case here to show the symptoms of a cerebral patient, whose disease was made worse by tobacco.

**1645. Ear Complications.** October, 1877, Miss G— wt. 19 yrs., light hair; so small in stature as to appear stunted in growth. She was quite deaf and spoke in so low a tone, and so indistinctly as to be hardly to be understood. It was with great difficulty I made her understand me sufficiently well to make an examination. She had been deaf nearly all her life; was exceedingly stubborn, and very poor. Sometimes she would not voluntarily speak a word to any member of the family for days, if spoken to her replies were given in monosyllables.

I was fully half an hour in making an examination. Partly because of timidity, partly because of stubbornness. Both tonsils were greatly enlarged, the pharynx is in a puffy condition and coated with a stream of fetid purulent secretion, which seemed to start from the basilar portion of the sphenoid bone. I could not obtain a view of the posterior nasal openings. Inspection of the anterior nares showed the turbinate processes so much enlarged as to almost fill the pass-



ges. She heard the watch when pressed slightly against her ears. When addressed at a distance of two feet, she could, if giving her attention, and watching the lips, give a correct answer to a question; if the speaker's lips were covered, she heard the words without understanding what was said.

After kindly persisting for half an hour, I was enabled to complete the cleansing of the pharyngo-nasal cavity, using plain vaseline; afterwards I used the prescriptions given on page 451. Inflation, while she swallowed a little water, increased the hearing to  $\frac{1}{4}$  in the right ear, and slight contact with the left.

To show what difficulty I had in obtaining answers to questions which did not give a clue to the answer expected, I will give part of a conversation that occurred between us on the occasion of her fourth visit.

How did you feel after the last treatment?

"Like I always feel."

I want to know how you always feel.

"Like I told you yesterday."

I want you to tell me again.

"What shall I tell you?"

How you always feel.

"Oh, I don't know, I have a noise in my head."

What kind of a noise do you hear in your head?

(A shake of the head, was the answer).

What do you complain of most?

"Nothing."

Do you feel entirely well?

(A nod of the head).

"Why do you come here to be treated?"

"To get well."

To get well of what?

"To get well of my ears."

What is the matter with your ears?

"Why, I am deaf."

Do you know what was done for you yesterday?

"Yes."

What effect did it have?

"Made my nose greasy."

Did it stop it up so that you could not breathe through it?

"No."

What did it do besides making it feel greasy? Now, don't shake your head and act as though you were a girl nine years old, instead of a young lady nineteen years old.



(After a full half minute's silence, she shook her head).

Her mother said, "Oh yes, you do know; did you not say that you could breathe easier and that your throat was not so dry this morning; and besides, you do not use so many handkerchiefs."

"I didn't know that he wanted to know all that?"

After repeated attempts at inflation of the middle ear by the phonation of "hick," it was found that the velum was too weak to retain its position firm enough to allow the injected air to pass into the Eustachian tubes, the deglutition of water was then resorted to, which was successful in forcing air into the left ear, increasing the hearing distance of the watch from  $\frac{1}{8}$  to  $\frac{1}{4}$ .

What effect did that [the inflation] have on the ears?

"Don't know."

Did it make you hear any worse?

"Yes."

Well, then, did it make you hear any better?

"Yes."

What do you mean by your first answer, that you did not know the effect on your ears, when now you admit that you do know?

"I didn't know what you wanted."

How did you feel this morning compared with yesterday morning?

"Don't know."

You are a large know-nothing young lady.

"Well, I don't know what you want?"

Did you not tell your mother that your throat was not as dry this morning as it was yesterday morning?

"Yes."

Well, why did you not tell me so, when I asked the question? Why can't you study a little?

"It makes my headache to study."

I mean that you should think a little before you answer, so that you can give me information concerning your condition."

"It makes my head ache to think."

Why did you not tell me that, when I asked you for your symptoms?

"I did not know you—how can I tell that you wanted to know that?"

All other information was drawn out of her by this method of questioning.

After she had gone, a physician who was interested in the case, and in this method of treatment of catarrhal diseases took the rôle questioner. As the questions with the answers may be instructive I will give them in full.



"What should be promised in a case of that kind?"

That the catarrhal secretion can soon be lessened; that the pain in the head and ears will soon be decreased; that the dryness in the throat will be lessened in proportion to the decrease in the swelling in the nasal passages, which should show improvement in eight or ten days, with a patient of her age and color of hair; that the hearing will *gradually* be increased as the secretion in the pharyngo-nasal cavity decreases, which will commence in a few days after the beginning of the *thorough* treatment; that the mopish, dumpish way should be displaced with the decrease of the inflammation; that the decrease of this inflammation will be in proportion to the regularity of the treatment taken, and to the care she takes to *avoid* taking colds.

"Then you give all the promises on conditions that she may not be able to fulfill."

If she does not comply with the conditions she does not place herself in the position to recover.

"You mean in the condition for you to cure her?"

No sir! I mean recover, and *that*, only in part, as her hearing, which has been for four months at least, nearly as poor as at present cannot be expected to recover more than eight or nine inches of a watch that she should hear 96 inches.

"That is not much encouragement."

I think it a good deal of encouragement. Even to tell her that her hearing may be with some degree of certainty maintained at its present acuteness, is sufficient encouragement to commence a very long course of treatment.

"But that she may get this benefit, she is to rely on herself, for if she takes colds the whole treatment will go for naught."

What else can I say. We know that colds were the cause of her trouble, we know that a continuation of colds will continue her trouble; you also know that I cannot control her actions every moment of time, day and night. The successful treatment of chronic catarrh of the superior portion of the respiratory tract is like the successful suspension of a chain. If any one link breaks the chain falls. So it is with the treatment of catarrh. You may say that the chain is composed of three links, and name the links: Hygienic, Sanative and Therapeutic Measures; if any of the links are broken the chain is broken, and your attempt to bring about her recovery through these means is unsuccessful, whether it be your own or your patient's fault.

The patient was treated six weeks. The hearing was increased to  $\frac{1}{2}$  in the right ear and  $\frac{1}{3}$  in the left ear. The tinnitus was lessened, the prominent symptoms were greatly decreased. Had she been treated six months, which would be comparatively, a short time, in all



probability, she would have been greatly and permanently benefited. As it was the treatment could only have a transitory effect.

**1646. An Unusual Case of Tympanophony.** Reported by Dr. Frank M. Rumbold. C. R—, æt. 17 years, tall and slender, called at my office August 8th, '87, complaining of an "echo" in his right ear. He had been subject to colds from infancy. About three weeks ago he began to have profuse and frequent epistaxes, for which a local physician sprayed his nostrils with a strong solution of boracic acid. The pain from this application was so severe that the patient cried and would not go back for other treatments. Immediately after this application he began to be annoyed with the "echo" and with deafness of that ear.

Upon examination I noticed that both nostrils were almost closed by a swollen condition of the turbinated processes, and that the right Eustachian tube was wide open and flabby looking. The tympanic membrane of the affected ear was flattened. After four treatments with vaseline and oil of eucalyptus, with spray producers numbers 4, 5, 1 and 2, the "echo" ceased and the tympanic membrane began to be slightly concave. After the sixth treatment the cone of light became nearly normal; nasal respiration was much improved and at the date of writing (August 17th) the hearing in this ear is as good as that in the other.

The chief points of interest in this case are the youth of the patient; the apparent cause of the tympanophony and the rapidity of the relief of the disagreeable symptom. This complaint generally occurs after the age of thirty-five years.



## CHAPTER III.

### REPORTS OF CASES AGED FROM TWENTY TO FORTY YEARS.

**1647. Chronic Nasal and Pharyngo-nasal Catarrh, with Brain Symptoms.** Reported by Dr. Frank M. Rumbold.

C. W. O'B., *set.* 36 years, has been a very robust man, weighing 175 pounds, but at the time of first seeing the patient he was greatly reduced, and wore an anxious look.

**Previous History.** In 1858-59 the patient contracted several very severe colds, and chronic nasal and pharyngo-nasal catarrh supervened. He went from bad to worse until he was unable to work, and unable to breathe through his nostrils. He could feel, with his fingers, that his septum was very thick. He had very severe headaches across his eye-brows and between his eyes, and at times thought that he was "going crazy." In 1873 he had a severe attack of typhoid fever, in the opinion of his attending physician, but which I think must have been a very severe catarrhal fever. After he somewhat recovered from that attack, he noticed that his breathing was freer, and upon feeling with his fingers, discovered that a portion of the nasal septum was missing. He has been an excessive smoker and chewer of tobacco for thirty years, having began the habit of chewing at the age of six. He has had pain in his head for the last twenty years which seemed to run in two streaks toward the occiput. When walking, he occasionally gets blind and staggers like one drunk. Previous to the past six years he has slept very little, being awakened by a tight feeling in his head, since which time, however, he has slept unusually sound, so that it was difficult to awaken him. His nose has pained him severely for the passed seven years, and he has had frequent and profuse epistaxis during that time. Coughing to clear his head would make him sick at the stomach. He has had tinnitus aurium for several years, and tympanophony in both ears.



He had tried many physicians and all the so-called "catarrh cures" but with no beneficial effect. He derived the most relief from snuffing up salt water.

**Result of examination.** The patient was anæmic, and wore an anxious look on his face, as if he dreaded that some calamity were going to overtake him. He came to my office on March 2nd, 1887, after having tried to find it four times, and each time forgetting where he wanted to go, or where the office was. The mucous membrane of the nasal and pharyngo-nasal cavity was greatly thickened and very vascular, the membrane of the larynx was anæmic, as was also the soft palate and lips. Anæsthesia of the membrane of the nasal, pharyngo-nasal and laryngeal cavities, was well marked. Anosmia was complete, and tinnitus aurium and tympanophony marked. The eyes were inflamed and so weak, that the patient could not read by gas light; nor could he remember what he had read after he had passed the third line ensuing. He would start to go to his work and would forget where he was going, or at other times when he got to work he would forget what he was doing. When he came into the office I asked him his name and within five minutes I again asked him his name and he had forgotten it! He had been a fair singer, but when he attempted, to sing "hard lumps would rise in my (his) throat." His voice was very husky.

**Treatment.** I first positively interdicted his tobacco, and told him that if he would stop all use of the weed, that I would cure him. This unwarranted assertion on my part gained his confidence and caused him to stop at once and entirely. As a general tonic I gave him *lurix* compound, a tablespoonful before each meal, and as a local treatment I sprayed his pharyngo-nasal, laryngeal and nasal cavities with *hot* vasoline and oil of eucalyptus. I treated him day for forty days and then until June 3d every other day. After the second week of treatment his headache became less severe and he could remember where he wanted to go and what he wanted to do. At this time he obtained work and until June 20th, he never missed a day's work, and that, too, working part of the time in the hot sun when the thermometer registered on the shaded pavement, from 96° to 103°. He boasted of being able to go down town and remember a bill of goods to be purchased, containing fifteen items; getting all the right things and in the right quantities. He was in all respects, except the discharge from his nostrils, which still continued quite profuse, an apparently healthy man. He had gained twenty pounds in weight. At this time he had the misfortune to be hit on the head, neck and shoulder by a falling brick wall, and was confined to his bed for three months, and not until the fourth week after the accident could he come to the office



for treatment. I found that his symptoms had retrograded somewhat, and think that his present headache is partly due to the severe confusion of his head. Since July 23d I have treated him about every fourth day, and at the present time (Aug. 18th), he can again resume work in the sun without causing more headache than would be expected from working in a stooping position in the sun.

He says that before he began treatment he was "plum crazy," an unusual thing for patients to admit, as they generally fight shy of admitting any such idea.

**1648. The Unrecognized Disease; Affection of the Pneumo-gastric Nerve from Long Standing Nasal Catarrh.**  
Reported by Dr. Frank M. Rumbold.

Dr. G—, æt 37 years, robust build. On July 23rd the patient called at my office and asked to have his throat examined. By questioning him at different times I elicited the following *previous history*. When a boy the patient had suffered considerably from "sore throat" and inflamed tonsils, as he grew up he did not seem to take cold easily but still always suffered more or less with his throat and head. Breathing through nostrils considerably impeded. The patient became nervous and lost his appetite. Could not exert himself in walking or climbing stairs, as he suffered considerably with asthma. His eyes became weak. The following is the doctor's own history of his case.

"On May 2d, 3d and 4th ('87) I slept in a room where the carpet had recently been cleaned on the floor, I commenced sneezing on the 7th or 8th, my eyes and nose ran warm water, commenced to cough shortly afterwards. My cough increased daily until about the 20th. On the 18th I was taken with a severe pain in my left side which lasted until the 1st of August. From the 10th of June I had taken Murate of Ammonia with Syr. of Tolu and Pran. Virg.; I derived no relief. My bowels had become constipated and my appetite poor. The pain in my side kept me from sleeping. I consulted a physician and was informed that I was suffering from rheumatism of the muscles of the heart; I took the remedies he prescribed but gained no relief. I had been an inveterate smoker and I found that it became impossible for me to tell the difference between a good cigar and a poor one. I stopped smoking but continued to grow worse. I had a hemorrhage, on the 30th of June, of about an ounce of blood that tasted as if it was full of ammonia. I applied a mustard plaster for the severe pain in my side; but as it made me very nervous I took it off. I called upon another physician and he pronounced my case acute pleuritis. As I did not improve under his treatment I called on a third physician and he pronounced my case as one of pleuritic effusion. I had formerly weighed 170 pounds and as I had lost 20 pounds I was advised to go



East. I visited the lakes and discarded the use of all remedies, but improved but little. I returned home on the 10th of July and was very weak and nervous. I consulted another physician and he stated that I had chronic bronchitis. I improved but very little and so went to another physician who informed me that I had mitral regurgitation and catarrh at the apex of the left lung. I then consulted another physician who concurred with the previous physician, with the exception that he said I would have consumption and advised a trip to lower California."

At this date July 23d, 1887, the patient called at my office to have his throat examined. I found that the mucous membrane of the pharyngo-nasal, pharyngeal and nasal cavities were very much inflamed; I also discovered several small crusts of blood situated over enlarged vessels, evidently the site of the frequent hemorrhages. The breathing was very short and irregular; the pulse was accelerated but regular; the throat was very tender and the patient gagged very easily. His weight was 158 pounds. Upon examination of his lungs I could discover no trace of phthisis, but could plainly hear mucous râles. A physician who happened to be in my office at the time also examined his lungs and could detect nothing serious the matter with them. His heart seemed to be normal upon examination both with the stethoscope and the sphygmograph. As another test as to the soundness of his thoracic organs he applied for a life insurance policy and, although he told the examining physician all about his case he was accepted as a good risk.

A microscopical examination of his sputa revealed the presence of tubercle bacilli. Pathognomonic bacilli were to be seen in every field of the microscope, though not, numerous nor in nests. The treatment of his case consisted of a general tonic and the usual local applications with the spray producers, besides good hygienic discipline.

The following is his own history of his case after the commencement of treatment under my care.

"It was almost impossible during the first five days to bear the treatment, owing to the gagging of my throat, but I immediately found relief for my nervous symptoms. After five treatments my appetite began to improve.

On July 31st "I could breathe through my nostrils after treatment.

Aug. 2d. "I am not so short of breath and my heart gives me much less trouble and pains me only a part of the time. I have no hemorrhages, which I used to have every third or fourth day. My cough is not much better.

Aug. 5th. "Dry mucus commenced to drop back into my throat.



My weight is now 158 pounds. Everything, especially soup tastes fine.

Aug. 8th. "Chest measurements: exhaustion  $35\frac{1}{2}$  in., expansion  $38\frac{1}{2}$  in. Walking is much easier and I experience less trouble in going up stairs. My bowels move more regularly and my eyesight is much stronger and better. I cough in the mornings very hard and it is almost impossible to keep from vomiting as the expectoration seems to be much thicker, but do not expectorate as much as formerly.

Aug. 10th. "I had my hair cut very short.

Aug. 12th. Caught cold from my short hair and my cough is worse and breathing shorter. The pain in my left side is, at times, very severe.

Aug. 14th. "My cough is looser and the pain in my side is less severe. My weight is now  $162\frac{1}{2}$  pounds.

Aug. 16th. "The pain in my side is almost gone and my cough is less.

Aug. 18th. "The pain in my side has ceased. My cough is of a tickling nature. Expectoration is not so copious as formerly. Can expand my chest to  $39\frac{1}{2}$  inches. Experienced pain over the eyes after treatment for the first time. My weight is now  $166\frac{1}{2}$  pounds.

Aug. 19th. "Experienced the same pain over the eyes after treatment.

Aug. 20th and 21st. "Same pain over my eyes after treatment. Appetite good; bowels regular; perspire freely; and I am a little nervous."

Aug. 5th was the first time he noticed the dropping of mucus into the throat, but when this symptom was called to his mind he then remembered that he had had this symptom for sometime past.

Aug. 8th was the first time he voluntarily referred to the sickness at his stomach when clearing his throat and head in the morning but he then remembered that he had experienced that symptom for some time past, but had never attributed it to coughing.

Aug. 18th I gave him a "heavy" treatment and as he did not state that he had any unpleasant symptoms following it until the 22nd. I did not know of his experiencing the pain over his eyes. As soon as he told me of this effect, I gave him a lighter treatment, and the pain over his eyes ceased, as also did his nervousness.

Aug. 23d. Again examined his sputa with the microscope. The amount of sputa expectorated had decreased considerably, but the tubercle bacilli were still present, but not in such numbers as formerly. His sense of smell has become very acute; formerly he could not smell ammonia unless it was very strong.



Aug. 29th. He is slowly improving. He does not gag so easily as formerly, and does not get so sick from coughing.

**1649. Chronic Rhinitis.** Miss Ella W., *æt.* 27 years. She visited me Aug 13th, 1866. She complained of excessive headaches, and profuse discharge from the throat and nasal passages. Her headache was frequently so severe that she would be compelled to desert teaching her class in the public school. Her bowels were habitually constipated, and her monthly sickness had been quite irregular and painful.

**Treatment.** Employed the common syringe with warm salt water, 3j ad. Oj., to wash the nasal cavities. This gave immediate relief to her headache. I then sprayed her nasal cavities with a solution of iodine, gr. j; muriate of ammonia grs. ij. glycerine, 3j. water, 3viij. M. Ten or fifteen drops were thrown into each nostril. This produced some pain. Prescribed a laxative and an emenagogue.

Aug 14. Used the syringe again which gave great relief to her headache. The spray was not used this time.

Aug. 22. I learned that since the last treatment, she had been so ill that she could not leave her room. I was requested to visit her, and found her in charge of a physician who was treating her for intermittent fever. While at her residence I used the syringe and warm salt water which greatly relieved her of headache, from which she was suffering severely. I made twelve visits, using the warm salt water only.

April, 1878. She called on me this time, because an excessive cough and palpitation of the heart. I examined her nasal cavities, and found a small gelatinous tumor in each cavity.

**Treatment.** I gave her the usual treatment for three days, and then removed the polyp. On her visit to me the next day after the removal of the nasal tumors, she informed me that her palpitation of the heart had entirely ceased, which it had not done for even two hours at a time during the last four years.

I treated her for three months at this time, then gave her a few treatments in the springs of 1881 and 1884, since which time she remained entirely well, and weighs more than she has done at any time in her life.

**1650. Chronic Rhinitis, with Excessive Deflection of the Nasal Septum.** Jan. 26th, 1867. Col. Merten F. *æ.* 27 years. called upon me for relief of almost continual stoppage of the right nostril. He had this nasal difficulty for nearly three years, but it had been increasing rapidly, especially for the last four or five months. Otherwise his health was good.

On examination I discovered that the nasal septum was deflected



ed greatly toward the left side, and the inferior turbinated process of that side was also greatly enlarged. His tonsils were also hypertrophied, and his uvula nearly as large as his little finger, and a little over an inch in length.

**Treatment.** Besides having him inhale the fumes of the murrate of ammonia at his residence once or twice each day, I sprayed his nasal cavities with the iodine and muriate of ammonia solution mentioned in the last case. I applied the tincture of iodine to each tonsil and the uvula, by means of a brush.

On his visiting me the next day he remarked that he was sure now that he had a throat and nostrils, and proposed that the treatment be less vigorous. It was agreed that he inhale the fumes of murrate of ammonia for a week or ten days, when he was to return for further examination.

Feb. 8th. The effect of the application of iodine to his throat was not in the least beneficial, and I advised the removal of a portion of the uvula and the tonsils. I took off about one-quarter of an inch from the uvula. It bled severely, and for about three hours. The effect of this operation was very beneficial to the throat and nasal passages.

Feb. 22d. I removed a large portion of the left tonsil. I was so full that the hemorrhage would be troublesome; but such was not the case. On March 3d, I removed a large portion of the right tonsil.

March 15th. He came to report that he could breathe during both night and day through his left nostril. He received no further treatment. I examined his left nostril in April, 1869, and found it very much improved; his tonsils and uvula were looking well. Of course he should have been treated much longer, and in a very different manner.

**1651. Chronic Rhinitis.** Mrs. Thomas A., *æt.* 27 years. Called upon me April 22d, 1867, wishing to be treated for an excessive discharge from the nasal passages. The four lower turbinated processes were quite large, and were covered with purulent secretion, as also was the posterior wall of the pharynx and pharyngo-nasal cavity; otherwise she was in good health.

**Treatment.** The nasal passages were cleansed by means of a syringe, using warm salt water. After this I had her inhale the fumes of the murrate of ammonia, in which I had placed pulverized cubeb berries. The effect of the berries was quite cooling, and not the least unpleasant. This course was pursued daily for two weeks, then every other day for about two months.

April 5th, 1876. She applied for treatment for her old trouble,



and in addition, a severe headache. She was treated by the vasoline method for this time, receiving about twenty-four applications. She has not needed treatment since, so she says.

**1652. Chronic Rhinitis.** Mrs. Ellen A., *et.* 33 years. Consulted me Sept. 28th, 1868, to be relieved of excessive headache and nasal discharge. On examination, I found the nasal mucous membrane much swollen, dark-red in color, and her left tonsil quite large.

**Treatment.** I used the catheter nasal douche to cleanse the nasal passages, and then sprayed them with the following solution: iodine, gr. j, murate of ammonia, grs. ij, glycerine and aa *er.* ãã 3j, ten to twenty drops were thrown into each nostril. This was continued for three days, then twice a week until Nov. 2d, at which time her trouble was greatly relieved, but had not ceased.

April, 1877. I gave her four treatments at this time; but with the vasoline instead of the iodine mixture. She was treated again on Sept. 18th, 1877, at which time she received three treatments; and she was again treated on May 12th, 1885. This time she received three treatments.

**1653. A Case of Rhinitis, Developing Rhinoliths.** Chas. T., *et.* 27 years, consulted me March 28th, 1872. He stated that he had a loose bone in his nose, which he thought was the result of a physicians harsh treatment. Upon examination, I found a hard substance in his left nasal cavity. I thought it was dead bone, and said that I feared that there might be other dead bones to come away from his nose, for some months to come.

I removed the hard substance, washed it carefully, so as to make a critical examination of it, but did not do so. The patient was treated for a few weeks, and left. Within six months he returned to have another "bone" removed. Upon removing this one, I was struck with the similarity of the appearance and shape to the first bone. I compared the two objects, and found they were alike in almost every respect. I then carefully examined the patient's nasal passages to locate the place from which the so-called bone had been removed. In so doing, I discovered what I took to be another dead bone. This was removed after much trouble on my part, and pain on the part of the patient. After the patient left, I made a careful examination of these masses, and found them to be accretions; they were the first I had seen; hence my mistake. Additional masses were removed during the next ten days, a quantity, sufficient to weigh fully one half ounce, when dried. The patient underwent a protracted course of treatment. He received fall and spring treatment for about six years. Since this time he has remained in good health.



The following interesting case is reported for me by Dr. P. W. Logan, of Knoxville, Tenn.

**1654. A Case of Rhinolith.** Miss A. T., æt. 32, applied to me for relief from nasal trouble during January, 1885. On examination found considerable inflammation in left nasal fossa, attended with a most offensive rather dry purulent secretion. There was comparatively slight inflammation in right nasal fossa. Notwithstanding the fact that the great amount of trouble was confined to the left side, I at first suspected *ozæna*, and did not detect the true condition until I had, on several occasions, failed to remove the supposed secretion which proved to be a nasal calculi covered in front by the most offensive yellow secretion imaginable. After using various detergents and failing to clear the passage I wrapped an applicator with absorbant cotton which I saturated with vasoline, and passed it back and forth in order to free the passage. In doing this I detected the calculi by the impression communicated to my fingers, as the applicator came in contact with it. The history of this case as related by the patient and her parents, is as follows:

"During infancy this patient introduced into left nasal fossa a slate pencil which was removed by pressure from without. There could have been no part of the pencil left remaining in the fossa. No special inconvenience arising from nasal difficulty was experienced until eighteen years of age, at which time the trouble began with a cold, attended with a watery discharge which continued for two weeks, after which a yellow offensive discharge was present continuously until the removal of the calculi.

"Had headache in left side of head so severely at times that she could not get relief except by having the head bound tightly for hours. The disease did not grow worse but remained the same year after year. The treatment during the past fourteen years consisted in the use of the nasal douche, inhalations and internal remedies. Suffered a great deal of pain, uneasiness and discomfort during the existence of the trouble, which was aggravated by menstruation or other sickness. Frequently had sore throat during the past year or two on taking cold. Was four years in Oregon where she was more comfortable. Afterwards resided in Colorado during which time the general health seemed better but the nasal trouble was aggravated by dust which is so abundant there. Traveling upon the cars always increased the trouble."

Both patient and parents are confident that no other foreign body ever entered the nose. As soon as the presence of calculi was discovered, I proceeded to remove it. Instruments used were Gross's scoop and a small but strong pair of forceps. Piece after piece was removed until the fossa was thoroughly cleared, after which the in-



inflammation and fœtor rapidly disappeared under the use of vaseline and emulsion of oil of eucalyptus, applied by Rambold's sprays Nos. 4, 5, 1 and 2.

In removing the calculi, which was composed of mucus and phosphate of lime, I suppose one-third of it crumbled under the pressure of the forceps and was not preserved. The remaining portion of the calculi, after it was thoroughly dried, was weighed by A. A. Yeager (a druggist) who reported its weight to be forty-three and one half grains. In removing the rhinolith I endeavored to bring the long axis of the larger pieces in line with the long axis of the fossa, therefore had very little hemorrhage. Completed its removal at two sittings, two hours and one half being consumed by the operation. The rhinolith occupied the inferior meatus of the fossa.

**1655. Chronic Rhinitis with Pruritic Catarrh.** Mrs. R. E., æt. 32 years. She consulted me July 12, 1877. The following is a short history of her pruritic symptoms: Three years ago last spring she was attacked with sneezing, severe nasal catarrh and headache. This lasted for nearly four weeks. At the close of the attack she had her first symptoms of asthma. The next spring all of these symptoms were repeated with a slight increase of severity. Before she had entirely recovered, she went to Minnesota, where all symptoms of the pruritic catarrh left in a few days.

This year she felt no return until Monday, July 9th. Each day's attack has been more severe than the day preceeding.

On the day of her first visit she had fever; her temperature was 100° F., and her pulse 112. Her tongue was coated, and her bowels constipated.

On examination. I found that she had a large gelatinous polypus in each nostril, which gave the tone of her voice quite a nasal twang. She breathed most the time through the mouth; her throat was dry in the morning showing that she had not sufficient breathing space through the nostrils.

**Treatment.** Both polypi were removed at once, and her nasal and pharyngo-nasal passages were treated by the spray producers, Nos. 4, 5 and 1. Prescribed a tonic, laxative and diuretic.

July 13th. Very greatly improved. Local applications were repeated.

She was treated again on the 14, 15, 17, 19, 21, 23, 25, 27, 30, Aug. 3, 6, 13, 16, 18, 23, 26, 28, and Sept. 12.

She had no symptoms of pruritic catarrh since the 17th of July. The treatment subsequent to this time was for her chronic catarrhal inflammation.



May 26, 1878. She was treated again and a small gelatinous tumor taken from her left nostril.

Sept 21, 1878. She experienced slight sensations of returning pruritic catarrh and was treated. She has remained well since that time.

I feel satisfied that the removal of the polypi had a very beneficial and immediate effect on her pruritic catarrh.

**1655 Another case.** Miss C., *et.* 19 years, consulted me on July 30, 1877. The symptoms of her complaint were plainly those of pruritic catarrh.

**History.** During a conversation with her mother, I learned that she has had sneezing spells each spring for several years, but no attention was paid to them. Her eyes are now quite sensitive to light. She had the first symptoms on July 23d and they have been increasing ever since.

**Treatment.** Had her anoint her eyes and face with vaseline at once. As she was quite feverish I prescribed three drops of aconite root every six hours and a laxative. Made local applications of vaseline alone by means of spray producers Nos. 4 and 5, using about half dram in each instrument. The No. 5 caused sneezing showing that I had over-treated her with this instrument.

July 31. She is much improved, but still sneezes. Local and constitutional treatment continued.

This course was continued daily for one week, at which time she discontinued attendance. She was not entirely relieved when she left me but would have been had she remained.

Oct. 12, 1879. She received fifteen treatments this fall and eight treatments in the fall of 1882. Since this time she has had no symptoms of the pruritic rhinitis.

**1656. Chronic Rhinitis with Enlarged Tonsils ; Mental Complications.** Mr. —, of Illinois, *et.* 33 years, visited me March, 1874, with a view of being treated for enlarged tonsils. As he underwent the preliminary treatment which lasted, in his case, nearly two weeks to their being excised, he informed me that for at least a year, except during the last week, his temper has been so irritable that it was the occasion of great distress on his part, as well as on the part of his near relatives. He frequently found it impossible to return an answer that was not insulting to his wife and father, especially when inquired of concerning his health. He said he got in a chronically cross habit of "chopping off" his replies, so that they dared to speak one word to him.

After the tonsils were removed, he took three months' treatment, and received fall and spring treatments for three years. His irritable disposition disappeared with the decrease of rhinal inflammation.



**1657. Another Case.** Mrs. A. V. J., *æt.* 22 years. "While suffering from neuralgia or catarrh I have frequently experienced a sensation, which led me to fear that I would lose control of my mind. This feeling was always accompanied with severe headaches. The immediate cause was usually mental trouble or intense application of the mind either to studying or reading. The worse attacks were invariably in the night; probably because there was then less opportunity for diverting the mind, which seems to be the only means of finding relief. The sensation would come and go, but the attacks never continue more than a few hours."

I treated this case in the fall of 1877. She soon recovered her mental trouble being relieved long before the inflammation had entirely disappeared. She was treated again in the fall of 1881, and in the spring of 1885. Since which time she has remained entirely well.

I treated one of her children in 1886 and 1887.

**1658. Chronic Rhinitis with Dyspepsia and Sleeplessness.** Mr. B., of this city, *æt.* 39, merchant, consulted me in March, 1875, for excessive sleeplessness and dyspepsia. He had taken a bad cold in the head, but had recovered, except that since his cold had left him, his food disturbed him, and at the same time he could not sleep unless he went to bed hungry. He had during the past few months experienced some reverses in business, which, added to his physical ailment, increased his mental anxiety. His memory was much affected; he could not tell from his books how his business was being conducted. Pulse 102; temperature 100° in the mouth. He had now and then pain on the top of the head, and at such times a slight palpitation of the heart; but the attacks were so slight, would not have considered them worthy of mention, had he not been questioned concerning such symptoms. After eating there was a great fullness and heaviness in his stomach; these symptoms were much more aggravated after supper than other meals. He had been a fleshy man, but was now quite emaciated, having lost thirty pounds in the last two or three months. Had taken hydrate of chloral and bromide of potassium to induce sleep which failed to produce the desired effect.

**Treatment.** After one application with spray producer Nos. 3, 4, 5 and 2, he stated that his head felt cooler. He received forty-five treatments at the first course, one year from this time, six more treatments, and in the spring of 1880 twelve additional ones. Had he been treated each successive fall and spring, he would not have required so many during the last spring.

**1659. Chronic Rhinitis with Mental, Lung and Stomach Complications.** Mrs. S. B. B., *æt.* 55 years, consulted me for her trouble on Dec. 20, 1873. The following is the history of her case written by herself. It is quite long but the whole story needed to be



told to see a good picture of her complaints. She had been under treatment for two years when she gave me this history:

"I was born in 1821. In a few weeks afterward my father died. My mother died of cholera in 1833. I was then a robust, hearty girl and grew up rapidly. At the age of 12 or 13 I was attacked with chills and fever. As I look back now I know I was imprudent and needed a mother's care. I had medical treatment such as was given in those days. For over three years I was terribly afflicted and did not mature as early as I should have done, I would suffer with dreadful headaches, pains in my bones. I had rheumatism and would bloat at times in both trunk and limbs like a person with dropsy. My frame was large and constitution strong and by the time I was 19, I enjoyed tolerably good health, though I am sure the chills and fever laid the foundation for a great deal of suffering all through my life.

"I was first married when I was 25 and lost my husband 5 months after from cholera. On the 21st of the following November I was taken with convulsions about 7 o'clock at night, some one was dispatched for the physician, but the doctor was from home and I lay in that condition until 3 the next afternoon. When he arrived he bled me very severely (his remark to me after I recovered was that he just left life in my body and that was all). Some time during the night I gave birth to a fine large dead baby, so I was told, for I know nothing more of its birth than I do of my own, all the signs of life that I showed was that I breathed, neither friends or physician had any hopes of my recovery.

"My food sometimes lying in my stomach for five, six and sometimes nine hours without any apparent signs of digestion save that of weariness of the whole body, such weariness I never knew from any labor (though, at times in my life, I have worked very hard). It seemed that from the crown of my head to the soles of my feet all was weariness, indescribable; strength, cheerfulness, patience all gone. I would feel that I could do nothing, hear nothing, I was almost invariably drowsy. At times I had no power to keep awake. For a long, long time I was ignorant of the cause of my weariness and drowsiness or I might have avoided much suffering by noticing what articles of food disagreed with me as I never tasted it after eating, and it was only through observation that I knew what to avoid. After suffering as above described for some hours, there would come over me spells of flatulency until my whole nervous system was wrought up to its highest pitch and it seemed that the very citadel of reason, common sense, good nature, patience and every other virtue and comfortable feeling was completely captured, and I felt almost given over to the devices of Satan and his emissaries.



The first of Oct., 1852, I was attacked with fever which soon ran into typhoid. I was attended by Dr. Clark, of St. Louis, the fever kept me in my room three months. I don't think I was any better after I was over it than before.

"In April, 1853 I went to New York and in the fall of the same year I commenced dress making. I succeeded well with my business for a while, but the confinement and sedentary habit was not suited to one of my temperament and a complication of diseases seemed to take possession of my body, involving the stomach, liver, bowels, kidneys and womb. Chronic dysentery was my summer companion with its attendant sister complaints, and rheumatism in the winter, the dyspepsia being foremost in the ranks. I was cauterized and treated for ulceration, leached and treated for hemorrhoids from which I had long and severely suffered. These remedies seemed very much like the new patch put on an old garment, for a while salving over, and then the difficulty appearing greater than ever; thus I was up and down, down and up, the unyielding iron constitution with which I was born, determined that all the united forces of disease should not conquer.

"In Feb. of 1861, I went to prayer meeting one evening in Jersey City. The basement of the church had been washed up and was quite damp. I took a severe cold in my head from which I have never recovered. This was the commencement of catarrh. All that summer and fall there was a copious and constant discharge from my head. In the fall it affected my bronchial tubes very much. I had been taking medicine and using a wash all summer, prescribed by a german allopathic physician, but apparently I grew worse, my cough grew so bad that by the advice of some friends I went to Dr. H. of New York. He gave me some of his specifics which relieved me very soon but did not cure me. I presume nothing would have done so at that time of life.

"I stated that in the early part of my life I suffered greatly from headaches but of late years the head pain or ache has changed to a dull heavy and often nervous wild teething, especially when my spots of flatulency would come on, it would seem as though the top of my head would come off. The poor body seemed so full of disease that some part of it was always out of time and was never without a complaint. I could not see the silver lining to my dark cloud. The buoyancy of other days was gone, the step lost its elasticity and I was a diseased mass, and without God's grace would have been perfectly wretched. I had no courage to try anything more, as medical men had exhausted their skill and I was down, it seemed I could neither live or die. I was so low as to expect immediate death but could get



neither encouragement nor relief and when all remedies failed I was advised to go to a water cure as the last resort. At that time I lived in Jersey City, N. J., and there being a water cure about 1½ miles from the city I was taken there. The physician used water principally, giving electricity twice a week and medicine very seldom. Our physician, was naturally very smart and was thoroughly educated. The treatment soon brought to the surface hundred of eruptions, such as boils, carbuncles, etc. \* \* \* \* In

July 1866 I returned to Missouri and was married in Oct. 1867 to the Rev. H. B., a widower with 5 children, the eldest 16 and the youngest 6 years old. My home being in the country there was much hard work and a great deal of responsibility too much for my shattered nerves. I was 43 when I was married the last time, and in about 4 years after this the critical period of life began. The body and nerves were already overtaxed and the stomach and head being the weaker parts. My catarrh and dyspepsia intensified and I shrank to a mere shadow suffering no acute pain but wearied, so wearied a burden to myself with no patience to bear with myself much less with a family and its cares. My head dull and not capable of retaining a thought, sleeping when I ought not to, lying awake for hours when I ought to sleep, so nervous, so restless, and miserable a condition, worse than all pains and I know what pains are. I had awful spells of flatulency. I had great fears of the Asylum (I sometimes fear it now). I was very miserable, nothing agreeing with me, I was recommended to Dr. C., of St. Louis, who I believe saved my life at that time, though I was up and down, better and worse, and finally my catarrh troubled me so much, my throat becoming very much affected, I was advised to try your treatment. \* \* \* \* I have enjoyed more comfortable nights and days, the palate more frequently indulged, I can now eat a hearty meal, the nerves braced up, and life made not only tolerable but more enjoyable in the past 18 months than for very many years before."

This patient has entirely recovered, but may need a few fall and spring treatments.

**1660. Chronic Rhinitis with Vertigo.** Mr. N., æt. 29 years, consulted me in April, 1874, for catarrh. of the nasal passages. The following is his history: "I have been troubled with the catarrh more or less for the last eight or ten years; it troubled me most during the last six years, all the time growing worse—one side or other of my nostril stopped up all the time, and a continual dropping of secretion into my throat, causing me to hawk and spit very frequently.

"Nearly five years ago I went down into the caisson under the east pier of the Ill. and St. Louis Bridge, I think much to my injury going through the airlocks caused me severe suffering—the dense



pressure causing my head to feel as if I were between a vice with plugs in my ears, with darting pains and aches, while in the caisson though not as painful, was like a man intoxicated, and hard to keep my equilibrium after coming out. For some time I discharged secretions and blood from the mouth and nose—ears ached—and were for months extremely sensitive to noise. When near the strike of a hammer it seems to pierce my head like an arrow. The catarrh has troubled me much more since this experiment. When I get a little cold it gives me a heavy headache, and the choking and discharge is almost intolerable, the latter becomes a little offensive. Have tried various remedies but to no purpose, used four dozen bottles of Sage's catarrh Remedy, eight bottles of Pierce's Discovery; for nearly a year I used carbolic acid by snuffing up the nose. I am troubled very much by an expectoration that seems to rise from toward my lungs that often makes my voice husky, and almost impossible to give an utterance.

"But worse than all this, on last Sunday morning, while I was lying in bed, I had a succession of the most frightful sensations that I ever experienced in my life, and I have experienced them again on Tuesday and Thursday mornings, but not so severely as on Sunday morning. At that time I think I must have been unconscious for some minutes, as I remember that some one was at my door, but when I came partially to my senses, I seemed as if I was falling or rolling out of bed. I grabbed the bed clothes to prevent falling on the floor. I also noticed that the house seemed to be rolling over from right to left. After this sensation had partially subsided I attempted to arise, but at once became unconscious, and when I awoke I found my heart palpitating very rapidly, and my body bathed in perspiration. On the next Tuesday and Thursday I again underwent the same symptoms but of a much milder form, and this morning I was again attacked. After I was up and dressed I felt like a drunken man. I have used tobacco ever since I was a boy. My memory is now so poor that I can hardly attend to my business; but this has only been during the last five or six months. I am afraid that I shall be paralyzed, and keep stamping my feet on the pavement to know that I have got feet."

This peculiar case was treated for about two weeks without experiencing any relief. He then went to New York City and was treated there; but nothing afforded him relief from his most troublesome symptoms. In August following he visited Europe, and stopped some weeks at Ems; returned to this country in November, and spent the winter in Florida.

April 9th, 1877, he again visited me. His symptoms had not changed much, and he thinks he has unconscious spells at night. He was utterly unable to attend to any business.

The appearance of his nasal and pharyngo-nasal passages ind-



ated long continued and excessive congestion. Since his return from Europe he has found it necessary to use glasses to enable him to read.

**Treatment** I made applications as indicated on pages 457 to 467. After the first application he expressed himself as greatly relieved. I continued daily applications for four weeks, then every other day for four months. After this time I made applications whenever he felt he required them. I also prescribed a tonic, laxative and diuretic, the larix comp.

The constant current of electricity was employed, placing the negative pole over the lower end of the sternum, and the positive passed up and down the spine, from the base of the brain to the lumbar vertebrae. These applications were made once a week.

The result of this course was to so far improve him, that he has had none of the prominent symptoms during the last eight years, while his memory is not equally as retentive as it formerly was, yet it is very much improved, and I believe that in four or five years he may be entirely restored in all respects, while to maintain this condition of health, in my opinion, he will require a few treatments, fall and spring, the remainder of his life time.

**1661. Chorea.** See topic 1445 (a). This patient received but one course of treatment, lasting about four months. When she first came to me she was completely aphonic. The arytenoid processes approached each other apparently normally, but the vocal cords did not meet; the opening of the glottis resembled a worn out button hole. She could not hold her breath completely in her lungs and let it go suddenly in a strong gust. Her voice returned to her after she had been under treatment about three weeks.

If she does not receive fall and spring treatments, the catarrhal inflammation will return again, with all its former sequences and severity.

**1662.** See topic 1445 (b). This patient was treated but three weeks. During this time he improved greatly, so much that he imagined himself entirely well. I have not heard from him since he left me.

**1663. Vertigo.** See topic 1443. This patient is still under treatment, and is rapidly recovering.

**1664. Difficult Deglutition.** This affection might very properly be called chorea of the muscles of deglutition. See topic 1444 (a) This patient made a complete recovery; but was about four months under continuous treatment. He received fall and spring treatments for three years. The last letter received from him, dated Nov. 1887, states that he is in excellent health.



**1665.** See topic **1444 (b)**. The history of this case is taken from Meyer's *Medical Electricity*, page 303.

**1666. Chronic Rhinitis.** Mr. —, æt. about 30 years consulted me in May, 1876. The following is the history, given at the time of his visit:

"About five or six years ago (in Dec. or Jan.) I contracted a very severe cold, that finally settled in my head.

"The usual discharges from the nose followed. The secretions were somewhat profuse, of a yellowish color, and continued right along after the cold had to all other appearance left me. In the course of six months, I began to feel a dull and seemingly deep-seated ache or pain in the lower part of my forehead and between my eyes. This pain was quite severe at times, though more deadening than acute, and apparently caused a rush of blood or unnatural heat to my head and face. It would continue thus from six to twenty-four hours, during which time my eyes were more or less red and weak, and then pass away for several days (eight or ten) though it seemed never to leave me entirely. I had suffered a great deal from headaches since childhood, and was so accustomed to them that I thought little about the pains.

"Secretions similar in character to those mentioned continued. They were more profuse at some times than at others, and better in summer than in winter. The headaches continue about the same, and were generally severe one night or day in each week.

"For some three years there seemed to be little change, then a hard lump of clotted matter would occasionally come from the head down into my throat, and usually be annoying for an hour or two before I could by a violent effort remove it. This would occur once in seven or eight days.

"From about one year after the first symptoms mentioned, until Feb. last, I was not at any time aware of having taken the least cold, unless a slight increase in the discharge from the nose may have indicated it. But no cough ever appeared, though I was more or less exposed, and before that time any cold that I took, almost invariably settled on my lungs, and a very severe cough for several days was the consequence.

"Within the past two years there has been no perceptible change either in headache or the secretions. I have, however, felt a dizziness and dull aches in my head, and at such times there seemed to be an overdue rush of blood or heat to the parts.

"The severe headaches mentioned continued all the time, and generally came on Saturday or Sunday of each week. I found that at



each times a large dose of salts would apparently relax the circulation and relieve me considerably, but only for the time."

This gentleman had the usual chronic congestion in the pharyngo-nasal and nasal cavities. The first application relieved him "of fully half of the painful symptoms," as he expressed himself as he was leaving my office. The usual local and constitutional treatment was continued about three and a half months and resumed for a few weeks in the succeeding fall and spring. I think he will require these treatments at least the greater part of his life time.

**1667.** See topic **1438**. This patient lost me on the day after he received the last treatment, and had a large piece of the superior dental nerve removed and in six weeks after submitted to the removal of the inferior orbital nerve. He felt greatly relieved after each of these operations, but the pain returned with its usual severity. He then visited Europe in hope of finding relief there.

**1668. Neuralgia.** See topic **1440**. This patient received treatment about two to five times each fall and spring. He is in excellent health.

(b). This case is taken from Meyer's Medical Electricity, p. 308.

(c). This lady made a good recovery. She has not had another disagreeable symptom. Her last treatment was given in the spring of 1886.

(d), and (e). These cases are taken from Meyer's Medical Electricity, pp. 814 and 815.

**1669. Headache.** See topic **1437 (a)**. This case is that of Dr. Anstie taken from Day, on *Headaches*, p. 240.

(b). This patient is still under treatment and will require fall and spring treatments about as long as he lives. Unusual care was required in the treatment of his case. The constant galvanic current—cathode over the epigastrium, anode over the seventh cervical vertebra—had an immediate relieving effect. All such cases are quickly relieved, but will require treatments at such times as they take cold.

(c). This case is taken from Day, on *Headaches*.

(d). This patient experienced relief at once from the local application by means of the spray producers. Electricity was beneficially employed. His teeth rapidly decayed during the time he suffered most with his headaches.

(e). I did not have an opportunity to treat this patient a sufficient length of time but she was greatly relieved while she received treatment. I have not heard from her since her last visit to me.

**1670. Laryngeal Sensations and Complications.** If the patient's sensations as to the location of irritation in the throat were to be the guide to indicate the location



of the disease, this class of complaints would be considered paramount to all other affections connected with the superior portion of the respiratory tract. The reason being that a continued cough, with a yellow expectoration always alarms one, and suggest "consumption," a disease, in the mind of the laity, which means certain death in a few years at most. When the patient first begins to cough, he is scarcely conscious of any sensation in the larynx; but later he begins to experience certain sensations in it, and lower down, as low or far as the middle of the sternum, then he is thoroughly alarmed. At this time when questioned concerning his complaint, he points to his larynx and states that his symptoms commenced *there* and afterward went down toward his lungs. If the laryngoscopist is consulted, he will look *down* into his throat, he *will not* see much to account for the symptoms just given him, he may, and in all probability will make an application with a sponge or brush, or give him "an inh-er" or he may recommend a teapot, into which he directs the patient to put some hot water, a few drops of tincture of iodine and a little carbolic acid. Had this physician in his examination, seen on the outside of the throat or chest an inflamed spot that gave indication of having been in this condition for years, with the blood-vessels over and surrounding it enlarged and tortuous, would he not at once have endeavored to trace the throat complaint to this diseased spot, especially if he knew that the two parts were very intimately connected by important nerves and blood-vessels? If in examining the throat, he had turned the reflecting surface of his mirror upward, he would have seen in every one of such patients, a grade of inflammation that would at once suggest *its* being the cause of the irritation in the larynx. It is passing strange to me, that this most important region of the respiratory tract should have been so long neglected by the numerous close observers, and when, to some, the subject was mentioned, they suggested, that to place the diseases of the nose paramount to and affecting the system to a far



greater degree than the diseases of the larynx, would be degrading to laryngology. Of course this is a mistake, I believe that the diseases originating in the nasal passages will soon receive the recognition of the profession, and be placed paramount to *all* others affecting the respiratory tract.

In the following five cases that I have given below, the local applications were never directed *into* the larynx. None reached this organ, except so much as was inhaled from a horizontal spray producer. That there are cases which require spray thrown into the larynx is not denied, but their number is very small in proportion to the great number who complain of throat symptoms.

**1671. Chronic Rhinitis with Laryngeal Sensations.** Miss F. of Ill., æt. 22 years; black hair; consulted me Jan. 29th, 1875, for severe cough and pain in the chest, accompanied by a slight show of blood in the expectoration. Had lost flesh during the last three weeks; appetite poor, bowels constipated, catamenial functions irregular, pulse 85; temperature in throat, 100°.

Examination by pharyngeal mirror revealed a large amount of muco-purulent secretion in the pharyngo-nasal cavity; larynx quite red, vocal cords reddish color.

Local application of vaseline and pinus canad. comp. (8 drops) as mentioned on page 251, was made by the spray producers Nos. 4, 5, and 2. Relief followed these applications; a tonic and laxative was prescribed; in three weeks she had gained 12 pounds.

After seven weeks treatment she made her last visit; and has remained well since, has gained nearly twenty pounds in weight.

**1672. Laryngeal Sensations.** Mrs. L. of Ind. æt. 32 years, consulted me in the spring of 1877. Has had cough for six months, during this time has taken several gallons of cod liver oil. She has lost flesh: formerly weighed 130 pounds, now weighs 110 pounds. Temperature in mouth, 99°; has had night sweats for three weeks; bowels constipated, otherwise regular.

Examination of the pharyngo-nasal cavity, showed long standing inflammation, and a quantity of tenacious secretion. The epiglottis swollen to twice its usual thickness; the arytenoids but slightly if any affected; vocal cords quite red.

Her treatment was quite similar to the above case. Immediate relief followed the first application; in three months she had gained 22 pounds. She had in all, about forty treatments at this time. Dur-



ing the fall of this year, she received six treatments, and the following fall, three more, since which time she has remained well.

**1673. Hemorrhage.** Mr.—, *æt.* 39 years; from Mo., visited me March 13th, 1876, on account of a severe hemorrhage (from the lungs as he thought). He was accompanied by his wife, as he feared to travel alone. He came into my office holding his head forward upon his chest, and looked up from under his eyebrows. I was struck with this position, which he persistently maintained while relating a history of his case. It was as follows:

"On last Saturday after I came from my work (blacksmith), I commenced to wash my face, and while doing so, my head being stooped down, as I washed with the pan on the ground, I tasted something salish in my mouth; I spat it out and saw that it was blood. I finished washing my face, but before I had done, I think that I had spit some half dozen times; every time there was blood in the spittle. I sat down awhile, but the blood commenced to drop out of my mouth; so I sat holding my head with my hands between my knees. My wife went for a doctor, who gave me a great many different kinds of medicine, but nothing stopped the dropping of the blood. I sat there all night, and with the saliva that came from my mouth, and the blood, the bucket was nearly quarter full. I think that the only thing that helped me, was the placing of a bunch of keys on the back of my neck. The next morning a doctor called; he wished to have me hold up my head to take a look at me. I was afraid to look up, but did so to please him; right away the blood commenced to run from my mouth again, and did not stop for nine hours. By this time I was as white as a sheet."

He was still very pale from the loss of blood. I at once judged that the hemorrhage came from the pharynx, as he experienced a slight sensation as of something tearing on raising his head.

Preparatory to making an examination, I got my cotton and the solution of the persulphate of iron ready, and having placed him in a favorable position, I directed him to slowly raise his head. As soon as he had raised it sufficiently high to place the lower jaw in a horizontal position, I saw a drop of blood start from a crack, that the raising of the head made in the black hardened clot of blood adhering to the posterior wall of the pharynx. I instantly placed a pledget of cotton—holding a little of the solution of iron—on it, and then continued my examination. There was no blood clot in the larynx; his voice had not been affected, nor were there any clots in the mouth of the Eustachian tubes; but the whole of the pharyngo-nasal cavity was very much inflamed, and many of the blood vessels were much enlarged, tortuous, black and blue. Strange as it may seem, this man had never had any symptoms that would indicate existing pharyngo-



nasal catarrh; yet the membrane and vessels were in an abnormal condition as those of the worst case I had seen during many years' observation of the diseases of this part of the body.

I at once sprayed the pharyngo-nasal and nasal cavities; but at the entreaties of the patient, did not touch the pharynx. No hemorrhage occurred.

At the third treatment I cleaned off the clot on the posterior wall of the pharynx, without causing hemorrhage. After twenty-three treatments; each of which (except the first five), were given every other day, he returned to his home. I have heard from him frequently, he has had no return of the hemorrhage.

**1674. Throat Sensations.** Mr. M., a lawyer, æt. 28 years; light fair; always has been spare built; consulted me in March, 1875, with regard to his lungs. His mother and grandmother had died of consumption. He complained of cough and some pain in his chest. During the last three weeks he had frequent attacks of palpitation of the heart; had formerly been very subject to colds in the head, at which times he had severe headache, bowels constipated; appetite capricious. Examination proved that his disease was in the pharyngo-nasal cavity alone. The effects of the treatment proving my statements correct. In three months he gained 28 pounds in weight, and every symptom of which he had complained, had left him.

**1675. Chronic Rhinitis.** A patient who had pain in her throat and chest, and had **hemorrhage from the throat** (and lungs)? Mrs. —, æt. 29 years, of Illinois, commenced treatment on the 1st of Aug., 1872. The following is her history up to Nov., 1874:

"The first distinct recollection of my throat troubling me was in 1859 and 1860, when I was off at school; the halls and rooms were large and cold, and from this I date all my trouble with my throat and head; I had at that time a constant tickling and irritation in my throat, and was constantly clearing my throat, and had a short dry hacking cough.

"After leaving school I do not remember that I ever had any serious difficulty with my throat until the year 1872. I was one morning canning peaches, when I had a peculiar cough, differing from anything I had ever experienced, and I commenced spitting blood, about one teaspoonful; at this time I had three or four different hemorrhages; my physician said I had congestion of the lungs (?), I became very weak and did not recover strength for several months; this was Aug., 1872. As soon as I was able, I went down to St. Louis and was examined and commenced treatment. At the time I placed myself under treatment I suffered severe pains in the chest, under my shoulder blades, especially under the left, and sometimes in my left side; the sensation in my throat was simply horrible; I sometimes



felt as if my mouth was filled with coals of fire; at other times there would be a choking feeling, as if something came up like a stick or bar across my throat and almost closed it; then again, I would have such a distressing, continual tickling, and this sensation is the most annoying of all the ills of the throat trouble. After using treatment for several months, I was very much benefited, and might possibly have remained so had I not, on going a short distance from home, about the last of June, 1878, been caught in a storm, and although I did not get wet, the carriage was damp and the night air also. Two days after this I had a severe hemorrhage, and this so weakened me, that it was thought advisable, indeed, it seemed my only chance of recovery, that I should try another climate, and as soon as I was able to sit up, my husband took me out to Denver, Col., July 15th, 1878. The first night I did not rest well in the sleeping car; all the next day we stopped over in Kansas City, here, for the first time in weeks, I began to take some interest in things around me; the next day I rested well, and next day was in the beautiful and to me the dear City of Denver. On arriving, I was tired, and noticed the difference in the atmosphere, it being so much lighter; had to lie down most of the day; the second day, walked with my husband about two blocks from the hotel; I remember meeting a school girl friend, who had married, and was living in Denver; she afterwards told me, that on seeing me so reduced, and looking so much like a walking ghost, she was so shocked that she could scarcely control her feelings; we soon secured board at a private house, and at first had to walk a short distance for our meals. I found this little extra walk gave me strength, and I began to walk further every day, until I could walk two or three miles without very great fatigue.

"Although I gained strength, I did not gain but few pounds in weight, neither did all my distresses and my ugly feelings in my throat and chest leave me. I often had pains in the chest, head and sides, but not nearly so frequent or severe as in Illinois.

"At first I would have about one nervous sick headache, to what I had four at home, the longer I remained, and the more I lived out in the open air, the less seldom I had an attack. I took the spray of pinus canad. comp. treatment out with me, and whenever my throat was troublesome, in fact, at first, I used it about twice a week. I was in Colorado sixteen months, and had but one very slight hemorrhage of the throat.

"Whenever I have an attack with my throat, especially if I raise blood; it always had a depressing effect upon me, although I fight against it; I want to go off alone, sometimes I dislike persons even to speak to me."

Given a casual view of the pharyngo nasal cavity of this patient



was sufficient to account for the liability to hemorrhage of the throat. Taking all the symptoms into consideration, no doubt can be entertained as to the locality of the ruptured vessel. On the morning the first hemorrhage occurred, she felt unusually well, and had busied herself more than usual with the household duties. There is no symptom to indicate congestion of the lungs. The shock, on being told she had a fatal attack of lung disease, was what weakened her, not the loss of the treacupful of blood and saliva. She was stricken with fear. The blood vessels in her pharynx and pharyngo nasal cavities were two and three times the usual diameter of those seen in a chronically inflamed pharynx and pharyngo-nasal cavity. Although she has not stated so in her history, her throat symptoms were instantly relieved by the hemorrhage. All that then affected her, was the shock from fright. As she was recovering by the use of the spray of *pinus canadensis* and carbolic acid, combined with tonics taken internally, she became less careful, went to a funeral, and was caught in a storm, being detained until late in the damp night air; when she caught cold, which produced another excessive congestion in the inflamed pharyngo-nasal cavity; this in return caused another hemorrhage and consequent fright. Although she expectorated but a table-spoonful of blood, then fright caused a weakness equal to the loss of three quarts, as seen from her history. At once she started for Colorado.

I believe it to be entirely proper for me to give my opinion as to the cause of her fright, even if I should offend some physicians who had the case previous to her coming to me. She labored under the impression that she had hemorrhage of the lungs, although she knew that the blood left her mouth without coughing, on leaning forward. But her physician had prophesied that she would have another hemorrhage, which she did, and was given to understand that she would not live long.

After her return from Colorado, she was under treatment at different times, for several years. Since 1876, the course laid out on page 451 was followed, with the result of abatement of all prominent symptoms. She now weighs more than she ever did in her life. Careful examination of her lungs failed to reveal them in the slightest degree affected.

**1876.** All non-traumatic pathological conditions of the larynx are due to chronic inflammation located higher in the respiratory tract. This at least, is my observation, which extends back to 1866 and, if it is true, it is a very important fact to be borne in mind when treating these troubles. If it is true that inflammatory



disease of the larynx is idiopathic, then the larynx should receive the greatest amount, if not all of the treatment, but if it is true that laryngeal disease is always secondary to pharyngeal inflammation and pharyngeal inflammation secondary to pharyngo-nasal inflammation and this again due to nasal inflammation, then most certainly the neglect to treat these regions, when the larynx is inflamed, must result in but partial relief, and if the patient makes a complete recovery, *cis medicatrix natura*, although only partially assisted, performed the cure. This assistance of nature is, of course, essential to every recovery, even when the greatest amount of aid is given by the physician, but it is his duty to give nature all assistance possible.

I am well aware that many of the secondary diseases of rhinal inflammation, such as that of the ear, the throat, the eye, the lungs, the heart, the stomach, the brain, etc., will take on an apparently independent form, and when they once assume so severe a character, they continue to increase in severity irrespective of the decrease of the primary inflammation; in fact, many times this increase of the secondary complaint tends to decrease the severity of the primary affection; yet, in my opinion, the only rational method of managing the secondary complaint is to treat both it and primary affection at the same time. My practice, especially since 1866, proves that in this I am correct. See 267 for pathology; 1051 to 1062 for chronic inflammation; 1075 for tumors; and 684 to 687 and 1081 to 1085 for removal of growths.

Some of the following cases are over forty years of age and properly belong in the next chapter, but as their treatment did not differ greatly from those under forty, they have been retained here.

**1677. Chronic Rhinitis with Vocal Disability.** June 23 1866. Mr. Wm. O'R., æt. 24 years, consulted me in reference to his inability to read aloud for over fifteen minutes at a time, after so he exertion his voice suddenly became a hoarse whisper and his desire to cough was irresistible. The night before his visit to me he exper-



ience a suffocative sensation, and this was so severe that he fell out of his bed, it occurring a short time after he fell asleep. He had been addicted to the use of tobacco for a number of years and also took occasional drinks of whiskey.

An examination of the throat showed a large quantity of secretion adhering to the posterior wall of the pharyngo-nasal cavity, and excessive redness of the whole fauces and the larynx. The vocal cords were a little red, not nearly so red as I had expected to see them. The mucous membrane of the nasal passages were black blue and the turbinated processes, especially the inferior ones, were very much enlarged and partially covered with purulent secretion.

**Treatment.** The common nasal douche, using equal parts of warm water and milk was employed; the posterior wall of the pharynx and the larynx was treated by an application of a ten grain solution of nitrate of silver.

June 24. His voice was greatly improved but his throat was quite sore, so were his nasal cavities; these were not treated on this occasion but the pharynx and larynx were treated by an application of the nitrate of silver using a steam spray.

June 28. On this visit I made my applications with my glass spray producer, and the effect of the treatment was most thorough, and the patient liked the treatment very much better than that made by the brush. His treatment was continued every other day for about four weeks, but his nasal catarrh remained the same. The steam spray was alternated with the glass spray producer.

He visited me again on June 18, 1880 desiring treatment for his nasal trouble. At this time he complained of an increasing deafness. He stated that his voice had not troubled him since 1868, he discontinued the use of tobacco entirely, but not that of whiskey, of this he took a little every day. His ear symptoms troubled him so very much that he feared he would soon be incapacitated for making a living as his hearing was decreasing very rapidly, especially within the last few weeks. At this time his left ear was  $\frac{5}{8}$  and his right  $\frac{1}{8}$ . With this deafness he had a furious tinnitus aurium, which frequently kept him awake at night. A peculiarity of this ear symptom was that when he had headache badly, his ears did not ring and *vice versa*. Lately he had lost weight; his appetite was very poor; and he was very thin in flesh.

**Treatment.** I gave him the usual treatment for chronic rhinitis, and inflated the Eustachian tubes and middle ears. In three weeks his hearing had increased to  $\frac{1}{2}$  on the left side and  $\frac{1}{4}$  on the right, and he had gained 12 lbs in weight. He received twenty eight treatments at this time and five or six each fall and spring up to 1886.



At his last visit his hearing was still better, and his health was excellent.

**1678. Chronic Rhinitis with Vocal Complications.** Rev. N. H. W., *et.* 33 years, consulted me on June 7, 1883, complaining of suffering from vocal disability. The following is his history of his case:

"I first became aware of serious trouble in November, 1890. Made pastoral calls all one misty, chilly afternoon. Next morning pharynx, tonsils, etc., were excessively inflamed and sore. To keep a promise, at 4 a. m., I took a train for Shenandoah, 70 miles, to help a brother pastor in a series of revival meetings. Had nine weeks of it there and elsewhere, with very severe winter weather. By taking care not to strain my voice, was able to preach and sing, daily, most of the time.

"My throat, however, was left in a bad condition, congested, deep red, painfully sensitive to cold air. Sometimes on Sunday evening, a tickling in or above the vocal cords would cause a fit of coughing, almost stopping my sermon. By chewing a bit of licorice root, and speaking very quietly, I could go on. With warm weather I improved. Was treated all this time by an intelligent homœopathic physician, and through May and June by another.

"Went East the last of June, '81. One of the foremost regular physicians of New Haven, Conn., prescribed a spray of dilute carbolic acid and chloride of zinc. (?) Used it for 3 or 4 months, except during an illness of 3 weeks caused by uric acid gravel.

"Before returning West, I had my throat examined by a chemist, a leading homœopathic physician, and after persisting in the use of the spray without benefit, I wrote to him for advice. He sent me ipec, also a root from which by soaking in alcohol and water, a spray was to be made.

"In Jan. and Feb. '82, I held special meetings in my church for three weeks, a friend doing most of the preaching. The work and the cold air, inflamed my pharynx, etc., again, and I was sick in the house for ten days or so.

"Jun. and Feb. '83, brought on the same thing, only worse. I was confined to the house 3 weeks; the first week quite sick and feverish. Just before this, an intolerable tickling and coughing one evening compelled me to stop in the midst of my sermon and dismiss the congregation.

"The trouble seemed to begin each winter, up in the pharyngeal-nasal space behind the soft palate. Thence extending along lower walls of the pharynx, the tonsils, etc., towards or to the vocal cords. For the first day or two of an acute attack, whitish or yellowish mucus could be seen adhering to the posterior wall of the pharynx.



But the chronic condition of the parts was swollen, dark red, dry, shining, with blood-vessels plainly visible, tonsils knotted, etc., and the sensation was a constant smarting and burning of the tonsils, pharynx, and up behind the soft palate. Cold air would cut and burn like a hot knife.

"As my nostrils were always open and free for breathing, and as my breath was not offensive, I did not suppose I had catarrh.

"My lungs (for a man so slender, height 5 ft. 8 in, weight 125 to 130) are large, sound and expansive. General health, digestion, sleep, etc., invariably good. I have never had much cough, or discharge from head or throat.

"Soft coal smoke was painful as brimstone to my throat. Anything pungently sweet or sour like chocolate caramels or vinegar and sugar as on lettuce, if eaten carelessly would sometimes seem to "go the wrong way," and produce a violent fit of coughing, though this was not frequent.

"Clearing the ears of wax with the head of a pin would always produce a short spell of coughing, a tickling, whistling cough like that which occurred in preaching.

"Never had any "sore throat" such as to make swallowing or speaking painful.

"Have always been considered a natural and easy speaker, and a good baritone singer. In speaking I never shouted, screamed or unnaturally strained my voice. Never went home hoarse.

"Had to stop singing tenor early in '82, because it caused tickling and coughing. I also had to stop singing bass in the winter of '82 and '83, for the same reason. Feared I should have to change my climate or profession. Most doctors thought so. Have usually read about one sermon in three.

"As to trouble before Nov. '80, I cannot say much. I did not know that I was more susceptible to colds than other people. At long intervals, 2 or 3 times a year possibly, had coughed up offensive cheesy chunks of matter, irregularly molded in shape, and varying in size from a pin's head to  $\frac{1}{4}$  of a pea. Less of that lately than 2 or 3 years ago.

"In April or May, 1874, a persistent, dry cough was removed after 2 or 3 months, by a physician's prescription and warm weather. In boyhood I had a great deal of nosebleed, worse in hot weather, while working on my father's farm. In manhood I have had much less of this; have sometimes been annoyed by it when stooping over and washing my face in the morning; or while walking rapidly to keep an appointment, or if I blow my nose too violently.

"I put myself under Dr. Rumhold's care June 7th, 1888. The deep color, burning and smarting have in a considerable degree yield-



ed to treatment. There is still considerable tenderness up back of the soft palate.

"The tickling, near the vocal cords, has not diminished so rapidly. Acting on Dr. R.'s suggestions, about July 20th, I experimented by reading in a loud tone of voice, and testing the pitch by a cabinet organ. I found, as he had predicted, that the greatest liability to tickling was found on speaking or singing loudly on the key upon which *most of the work falls in public speaking*. I found that my preaching tone ranges chiefly from E flat up to B flat, an interval of a "Major fifth," and that by singing loud upon the middle tone of that range, viz G, the upper space of the bass clef, tickling and coughing were most quickly produced. This explains how it is that I can sing low bass or high tenor; but have to beware of the 2 or 3 tones where the tenor and bass join.

"I also found that even on G., I could sing open vowel "a" (as in father) as forcibly as I pleased, while the vowel sound "oo" (as in "food") would produce tickling and coughing almost instantly. I know not how to account for it unless on the supposition that in the open sound "a" the false vocal cords are held so firm and far from each other and from adjoining parts that they feel no jar or irritation, while in "oo" the contrary way be the case."

**1678. Treatment.** He received the usual treatment for chronic rhinitis and vocal disability. The last time I heard from him, dated April 6, 1886, he says: "My voice serves me well, though I am treated about a dozen times in the course of the year."

**1679. Reports of Cases of Laryngeal Enlargements.** Mr. James G. M., of Little Rock, Ark., *æt.* 27 years, was brought to me by Dr. Fredrick Frocke, Feb. 22, 1888. His voice had been afflicted since October 1887, at which time he caught a very severe cold. He had suffered from nasal trouble ever since he was a boy; his ears were also affected, the left one the greater. During the three months previous, to his visit to me he had lost nearly 80 lbs. in weight, at the same time he had a severe cough; this was so severe that he could not sleep at night. His appetite was very poor, his stomach sour, and had eructations continually, and his bowels were habitually constipated.

Upon making an examination I found that his **epiglottis** was slightly edematous the left border being the more affected, the left **arytenoid process** was much swollen and its movements were much limited, the patient could not cause its complete abduction nor adduction, consequent upon a deep and slow inspiration, after an effort at the phonation of "aye," both arytenoid processes separated at a uniform speed, until they were about a quarter of an inch apart, then the left process came to a stand-still, and the right one continued its ab-



duction for fully one-eighth of an inch farther. Upon another attempt at phonation the right arytenoid process commenced to move first and as soon as it had arrived at the point in which it was about the same distant from the median line as that occupied by the left arytenoid process, then both moved evenly toward the middle but the left arytenoid process did not reach the middle line and the right process crossed the middle line so as to cause its vocal cord to approximate the cord on the left side to form a sound.

**The Vocal Cord** of the left side was as red as the surrounding mucous membrane, but that on the right side was not quite as red. The **pharynx** and **pharyngo-nasal cavity** were greatly inflamed; the blood vessels were very large and tortuous, and seemed ready to burst. He had had no hemorrhage from the lungs, but had quite a number from the left nasal cavity. Inspection of the **nasal cavities** showed them to be very much congested, but there was no marked thickening of the mucous membrane. An examination of the **lungs** did not demonstrate any very great abnormality.

**Treatment.** His nasal and pharyngo-nasal cavities were not treated, for the reason that he did not wish anything done to them. He said that he had noticed during the previous three or four months that when his nasal passages "were in a bad way" his throat was feeling well, comparatively, but when the nasal cavities were open and free, his throat was exceedingly irritated. He also noticed that if his stomach was "badly out of order" his throat and head were in a comparatively easy condition, and his cough was always much less. These peculiarities are very commonly met in rhinal practice.

For the first five days, I employed the steam spray producer, one that I procured in Berlin; in this, I placed a solution of iodine gr. j, iodide of potassium grs. x, and simple syrup ℥j; into the boiler place a half drachm of the tincture of iodine. The effect of this was very drying and for this reason it was discontinued, and an ounce of paragon and ten grains of iodide of potassium, to the ounce of glycerine, was substituted for the previous solution that was sprayed into his throat. This was very soothing and it decreased the cough very much. On the 1st of March, the opium spray had lost its good effect. At this time the patient could not sleep and was so weak that he could scarcely walk. His cough had also increased to its former severity, I recommended the touching of the left arytenoid process with a solution of nitrate of silver, forty grains to the ounce of water. This was done and after the spasm which followed the application had passed off, he felt much better; and was much encouraged. He felt as though he could get his breath easier. This application was repeated on the third day, but this time he did not experience the relief that followed the first application.



At this time the nasal passages were giving him a great deal of annoyance, to relieve which I used a spray of warm water and salt, two grains of the latter to the ounce of the former. During all this time he took cod-liver oil, and the syrup of the iodide of iron.

On March 23d, I made another examination of his larynx with sunlight, and saw a small growth on the left arytenoid process. After quite a number of efforts, I took this away with a Semeleder laryngeal forceps. He had severe spasms of the glottis after its removal; these were so numerous and prolonged that he was too exhausted to walk to his lodging, and was taken there in a carriage.

He did not visit my office after this, being too weak. I went to his room and treated him slightly with anodyne applications for about two weeks, at which time he went to his home in Little Rock, Ark.

I was informed that he had tracheotomy performed about the middle of May, and in about three months afterward died, apparently of a rapid consumption.

It is my opinion at the present time that everything I did to this man's throat did him an injury only and the greatest injury was done when I took off the growth from the left arytenoid process. He might not have lived long had he been treated properly but if I had another such case now, I am sure that he would not die in six months from the time I commenced to treat him, as this patient did. If I had not operated on his larynx, he would not have required the tracheotomy.

This patient's nasal and pharyngo-nasal passages should have received, almost exclusively the local treatment as it was the disease in these regions that maintained the disease of the larynx. Besides the local treatment he should have been given tonics and pepinoids as well as strychnia or electricity. If his larynx became greatly involved, a rest might have been given it by inserting a tube into his trachea.

**1680.** On March 9, 1868, Dr. Jas. T., at 34 years, consulted me about a constant hoarseness. He had been in this condition for nearly one year. He had, up to six months ago, used tobacco inordinately and had indulged in a drink of whiskey about once a day, sometimes two times a day. His **larynx** appeared exceedingly red and angry; the **vocal cords** were as red as the surrounding mucous membrane even upon phonation; the **pharynx** and the **pharyngo-nasal** and **nasal cavities** were all highly inflamed. The late Prof. J. N. McDowell had removed his uvula and had taken a large polybus out of his left nostril.

**Treatment.** This consisted in the use of the steam spray producer with a little muricite of ammonia. This was employed one week and then alternated with the inhalation of nascent muricite of



ammonia, as mentioned in 584. These two method of making applications were employed alternately for about two months. At first the doctor was greatly pleased with both methods, but they lost their relieving effect in about two weeks and were employed on their reputation or rather on the reputation of those recommending them, after that time, until the patient was actually being injured by every application.

He left me on the 9th day of April, following. I have not heard from him since that time.

**1681.** Mrs. Jane K., of Kansas, wt. 49 years, consulted me on April 18, 1868, for a severe cough and a chronic hoarseness.

Upon examination I observed, what appeared to be, a swelling of the ary-epiglottic fold, sometimes called the false vocal cord, of the left side. A large white bean had been pushed up into the sacculus laryngis on the other side. I think that it would have been difficult to select the diseased side of the larynx. Her pharynx was covered with follicles, and the pharyngo nasal and nasal cavities were and had been for many years in a highly inflamed condition.

The **treatment** consisted in the use of the steam spray producer and the inhalation of muriate of ammonia

was continued daily; she expressed a feeling of relief after each treatment, but it was evident that the steam did not assist in the reduction of the inflammation, as she soon found that upon going to her room, about two blocks away, that her throat was far more sensitive to cold than formerly. For this reason the use of the steam spray producer was soon discontinued, and the inhalation of the muriate of ammonia continued. Her nasal passages were sprayed with a weak solution of muriate of ammonia and iodine.

On April 18th, thinking that the swelling over the left vocal cord was an abscess, because of a throbbing sensation that she experienced there, I lanced it, using Semeleder's laryngeal lance. The hemorrhage was very profuse and occasioned severe spasms of coughing, which could only be relieved by her taking a horizontal position. I made the cut at about 10 A. M. and the blood did not cease to flow until late that night. I was very much frightened during that afternoon and endeavored to pass a sponge, which held a solution of the persulphate of iron, but she could not sit up without incessant coughing. It was very fortunate that I could not make the application. I had her inhale the spray of the muriate tincture of iron, this had no effect in checking the hemorrhage but did produce a very disagreeable dryness of the throat. Toward evening, about 6 P. M., I observed that her voice was much better, and said so to her, this had a very encouraging effect upon us both, as I was, at that time, greatly in need of a tonic, or an invigora-



tor or something of that sort. At half past 7 p. m. she was able to get up from a sofa, upon which she laid, and walk to her boarding house.

She made a good recovery after this, her voice was greatly improved, and the swelling a little less in size. She remained with me for about four weeks longer, and then went home much improved in every respect.

I heard from her in 1882, at which time she sent me a patient. At this time her voice was still affected, but she experience no pain or uneasiness whatever, her nasal passages were also "in a pretty good condition," but she still inhales the fumes of muriate of ammonia, which I directed her to use when she experienced any disagreeable sensation in her nasal cavities.

**1682.** August 4, 1868, Mr. J. N. H., *æt.* 41 years, visited me for treatment for a long standing hoarseness and a severe cough, he also had severe pain in his left lung and for years was troubled with dyspepsia; his bowels were habitually constipated and he had marked symptoms of Bright's disease. In all, the case was one in which nothing but tonics and a supporting treatment should have been employed, but I did not know enough to follow this course. It would have been far better for me to have refused to treat the case, but I was sure I was going to help the man, so I made the effort, but fortunately for me I said that I would "try to assist in relieving the cough."

Upon making an examination I found that both arytenoid processes were much enlarged but the right one was the larger of the two. The pharynx and pharyngo-nasal and nasal cavities were greatly inflamed, and just opposite the right posterior nasal opening was seen an incrustation hanging to the posterior wall of the pharyngo-nasal cavity. The left nasal cavity was almost completely closed by a deflection of the nasal septum to that side and by an enlargement of the inferior turbinated process of the left side.

**Treatment.** This consisted in the use of the inhalation of the muriate of ammonia as described in 584, and the application of a sponge with tincture of iodine to the place where I saw the ulcer, as I then thought, in the pharyngo-nasal cavity. My probang brought away the crust, which was about half an inch in diameter. Formerly this inspissated muco pus had been shed about once a week. He said that every time it came away he felt as though he had found something very important, and felt an irresistible desire to tell those near him of the fact that it had come away.

The effect of the inhalation of the muriate of ammonia was not very marked either way, but that of the application of the iodine to the pharyngo-nasal cavity was very irritating, so much so that he could not sleep, and his cough was much worse, and his appetite gone.



His kidneys now began to give him great pain, and the amount of urine was "immense." To assist in checking the cough, I applied about a twenty grain solution of nitrate of silver to the arytenoid processes, but that made them worse, and the patient suddenly became so weak that he was unable to come to my office. The result was that he died in about six weeks afterward. All my applications to the larynx were worse than useless, yet they were in perfect agreement with the practice of my teachers.

**1683.** Mrs. Ardell S., *æt* 39 years. Was recommended to me by Dr. Cooper, Jan. 6, 1870. During the winter previous she had experienced painful sensations in the left side of her throat, this was accompanied by an intense tickling in this part and an irresistible desire to cough. She had a slight otorrhoea on the left side ever since she was a girl.

Upon examination I found that the left arytenoid cartilage was quite tumefied. Both vocal cords were slightly redened but the left the more. Upon examination of her nasal passages it was observed that there was a small incrustation in the left nostril, this she blew out about once a week. The pain in her throat seemed to originate in her left ear. Otherwise she was in good health in every respect, had a good appetite and slept well.

**Treatment.** As she considered that her whole trouble came from the ear I directed most of my attention to this organ. This was syringed with warm salt water, and a solution of nitrate of silver, 20 grs. to the ounce, warmed and dropped into it. The Eustachian tube was inflated. I treated the nasal passages with a spray of a weak solution of muriate of ammonia and tincture of aconite root. Some of this solution was sent into the larynx using the spray producer No. 7. This course was continued until April at which time all operations on the ear were discontinued for the reason that they seemed to injure the inflammation in the throat. On the 18th of April I applied to the larynx, a solution of 10 grs. of nitrate of silver to the ounce of water by means of a brush, the effect of which was to increase the cough very materially. On the 21st of April I lanced the swelling in the larynx. This had the effect as in Mr. K.'s case of producing severe and prolonged spasms of coughing, but the result was a reduction of the desire to cough and improvement in the voice. The hemorrhage in this instance did not last half an hour. I continued the treatment of the nasal passages, making applications once and twice a week until the fall of that year, at which time I discharged her, stating she was as nearly well as she could be.

**1684.** Mr. Wm. D., butcher, of this city, *æt* 43 years, recommended to me by Dr. Wm. Neihaus, on Feb. 2nd, 1870. From his history of the case there was no doubt of its being syphilitic in character



and I treated it as such. He was almost devoid of voice and had very great difficulty in breathing, his lips and finger nails were blue because of lack of aeration of the blood. Upon examination of his throat it was found that his epiglottis was so oedematous as to almost completely close the passage to the lungs and it seemed to me that the man was in imminent danger of instant suffocation. Figure 143 gives a pretty good representation—drawn after repeated examination of the patient—of the size of the epiglottis and the opportunities for respiration.



Figure 143. Partially illustrating the oedema of the epiglottis.

He had been using a steam atomizer, and after inhaling the spray from it for about half an hour, he immediately went to his place of business, and remained there during the forenoon. Previous to this inhalation his voice was not greatly affected; but by 12 o'clock he could hardly speak a word. He then went home and used the steam atomizer again. This he employed several times during the afternoon and the following night. He did not sleep at all during this night, because of a sense of suffocation that was continually present.

I recommended that tracheotomy be performed at once, and with the aid of Dr. Niehaus, I inserted the tube while he was sitting up in a chair, as he found it impossible to take the horizontal position. The hemorrhage from the cut was very excessive, and I feared that the man would die of asphyxia before I could get the tube inserted into his trachea.

After the tube was inserted he was placed in bed, and slept the most of that afternoon; large doses of quinine, and a brisk cathartic were prescribed. He rested well during the night, the next morning I made an application to the epiglottis, of a 20 grain solution of nitrate of silver, and sprayed the nasal passages with a weak solution of carbolic acid, glycerine, and water.

Immediately, after he was laid in bed, I had a large sponge, that had been squeezed out of hot water, laid over the tracheal tube; this warmed and moistened the air as it entered the lungs, thus preventing the necessity of having the air in the room unduly heated and moistened, which is usually found beneficial in tracheotomy cases.

Feb. 23 | oedema of the epiglottis greatly reduced, I could now for



the first time see the arytenoid processes. They must have been very much swollen as they were still in that condition, but as his voice was greatly improved it indicated that they also had improved.

While he was in the house, he had the hot, moist sponge on his neck all the time. In eight days he was strong enough to drive to his business but for the impossibility of maintaining his sponge warm, since as soon as he went out doors, it became cold, much to his discomfort, as he could not breathe cold air without producing an excessive cough, and some pain in his lungs.



TRACHEOTOMY RESPIRATOR.

Figure 144. Illustrating the application of an apparatus for conducting the warm and moist air from the mouth and nasal passages to the lungs. In the case of tracheotomy, *a*, tracheal tube in place; *b*, short rubber tube connecting the trap with the tracheal tube; *c*, trap to catch the muco-purulent secretion that is coughed from the lungs, and the condensed vapor from the mouth; *d*, the rubber tube connecting the mouth with the trap and tracheal tube. In the trap *c*, I put a small bag of pulverized charcoal, to deodorize the secretions.

For the purpose of allowing him to have warm, moist air all the time, and to allow him to blow his nose—which had given him a great deal of trouble, and much discomfort, because of the presence of nasal secretion—I connected the tracheal tube with a rubber tube, which he placed in his mouth. In this way, the air from his lungs passed through his mouth, up behind the soft palate, and out of his ~~nose~~.

This enabled him to blow his nose as completely clean as he ever did in his life. During inspiration the air passed through his nostrils, mouth and the rubber tube, into his lungs through the tra-



obial tube, thus giving it nearly the normal degree of warmth and moisture.

It was found, after a short trial, that the muco-purulent secretion from the lungs, and the condensation of the moistened air from the mouth and nose as well as some saliva from the mouth, accumulated in the rubber tube, which, when they passed into the trachea, caused intense, spasmodic coughing. For a few days he partially prevented this, by clearing the rubber tube, after taking it out of his mouth, by coughing through it rather forcibly. As it was quite difficult to clean the rubber tube of the muco-purulent secretions in this way, I had a glass receptacle so attached to the trachial tube and the tube going to his mouth, that the secretions were prevented from entering the tracheal tube. I have called the apparatus a **Tracheotomy Respirator** and secretion trap.

He found that when he did not breathe through his nasal passages, it produced a disagreeable, hot sensation, causing a desire to cough; but as soon as the air came through the tube from his lungs, this sensation ceased as by magic.

This apparatus was worn by the patient for several weeks. As the swelling in his throat subsided, so that he could breathe through it, the apparatus and the tracheal tube were taken away.

I had the trap blown by a glass blower. It was about an inch and a half in diameter. The patient covered the trap with his beard and a silk handkerchief, so that it was not in sight. When the secretions nearly filled the trap, he removed it, placed it under the hydrant for a few minutes, which cleansed it thoroughly. During the first week or so, he washed the trap about once every two hours not on account of the amount of secretions, but because they tasted so extremely foul in his mouth. Sometimes the odor induced a qualmish sensation of his stomach.

On March 29th, I removed the tracheal tube, at which time he had not the least difficulty in respiring through his larynx.

His treatment, from that time for the next ten years, was given him as it was required, he visiting me from once to four or five times each month, for the first three years. He was then treated a few times each fall and spring, as his symptoms required, until 1880.

The treatment consisted entirely of applications made to his pharyngo-nasal and nasal cavities. The spray producer No. 1 was also used, while he took deep inspirations. This was all the treatment that his larynx received. Every time I made applications, of even a mild remedy, to his larynx with a brush, the inflammation was increased instead of decreased. Thus his wife, a highly educated lady, noticed, and frequently called my attention to it.

His voice never became normal nor very strong. He always



had that peculiar kind of a cough that comes from a throat in which the vocal cords were either ulcerated or had a growth upon them. He died in 1886 of pneumonia.

I have applied the same kind of an apparatus to other tracheotomy cases. It did not seem to give quite as much satisfaction to other patients as it did in this case, his trachea being excessively sensitive to cold air; yet it was always a great relief to every patient to breathe through the nostrils.

From remarks made by *all* of my patients, I am certain that the nasal passages will suffer positive injury if the air does not pass through them. As these cavities were in a diseased condition before the larynx became so seriously involved as to require tracheotomy,

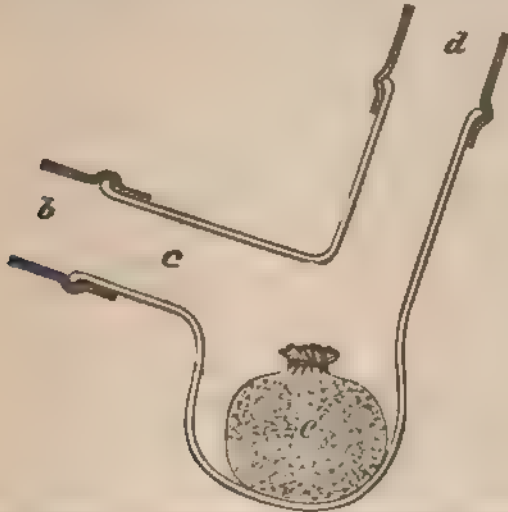


Figure 145. Section of the TRACHEOTOMY RESPIRATOR and SECRETION TRAP.

*b*, a short rubber tube one inch long, that connects the secretion-trap with the tracheal tube; *c* the secretion trap; *d*, the rubber tube, which is about seven inches long, that passes into the patient's mouth; *e*, a small bag of pulverized charcoal.

the fact that air does not pass through them, will assist in maintaining their diseased condition, and tend to increase the inflammation in the larynx. As the disease in the larynx is secondary to rhinal inflammation, the importance of maintaining the nasal passages in as nearly a healthy condition as possible, is a matter of great moment. One intelligent patient remarked that he was never so convinced that the passage of air through the nasal cavities was essential to health, as he was after he had worn the tracheotomy respirator a few days, and had tried the effect of breathing through the tracheal tube alone. His experience proved, to his entire satisfaction, the beneficial effect



of the passage of air through the nasal cavities.

Besides exerting a healthful influence on the nasal passages, it must be fully as beneficial to the trachea and lungs.

To one, a lady who had malignant disease of the larynx, the taste, as she called it, was intolerable. For the purpose of correcting this, I put a small quantity of pulverized charcoal, tied in a small bag, into the secretion-trap. This had a partially good effect, it made the rubber tube *d*, bearable in this patient's mouth. Figure 145 represents the kind of a secretion-trap I employed in this case.

I would now recommend that the rubber portion, *b*, be lengthened so as to place the secretion-trap—which might be large enough to hold a bag of pulverized charcoal fully two inches in diameter—under the clothes, where it would be warmed by the heat of the body. The rubber tube, held in the mouth of the patient, should reach as far back on the tongue as it can well be borne, as in this way much less saliva will be liable to flow into the tube.

**1685. Chronic Rhinitis with Lateral Paralysis (left side) of the Soft Palate, Uvula, Tongue, Epiglottis and Arytenoid Process.**

Dr. S. J. P. A., DD., æt. 53 years. He consulted me, by the advice of Dr. L. Elsberg, in Oct., 1869. His health was only moderate, had lost flesh during the last three years, weight then 159 lbs., usual weight 185 lbs.; hair dark red, skin light, appetite had been poor for several years. He was in a condition of constant weariness and as a consequence was much discouraged. Seven years previous, his voice gave way suddenly, this was after great exposure and severe mental strain. Since that time he had not been able to produce one clear tone. Heretofore his voice had a rich, melodious tone, and was of great power and penetration. His inability to pronounce a single syllable with a pure tone had the effect of making him feel as though he was "abandoned, even by the great and good Heavenly Father." His melancholy had frequently been so extreme as to cause him to shed tears, like a woman. These "crying spells" had been frequently prolonged for an hour at a time. The loss of his voice was the loss of his all; his opportunity for doing good was cut off completely. His voice had been a source of great pleasure, it was his strength, and he felt proud of it, but now it was an evidence of his having sustained a great loss. He felt like a man lost at sea, one that had not even a board to save his life or a crust of bread to sustain it.

He had suffered from headache, especially during cold weather for nearly twenty years. His right ear had been more or less affected all his life; his hearing in this ear was  $\frac{1}{2}$ , in the left  $\frac{1}{4}$ . He had a



continuous noise in the right ear and of late years, a slight noise in the left ear. About twenty years ago he visited an itinerant "ear doctor" in Cincinnati, but was not benefited by a two weeks treatment. He had had otorrhœa in this ear ever since.

His eyesight failed him when he was about 39 years old, since that time he had worn glasses.

Although he dates the time of the loss of his voice at seven years ago, yet he remembers that he had an unsteady gait, and was inclined to turn to the left side, and was liable to stagger backward at the same time. At this time he had "terrible pains" in the back of his head, sometimes these pains would make him stagger, he also experienced a feeling as if somebody had hit him from behind. This sensation was so strong that if he was standing, it made him move his head suddenly forward and downward and if there was any one, even his best friend, standing a little behind him, he turned as though he would avoid being struck from behind. He placed the pain in the occiput.

At the time he took the severe cold, seven years before, he lost all sensation of pain in his nose and throat and right ear, but before that time he had a tight aching feeling in the upper part of his nose and across his forehead. Very frequently it was impossible for him to locate the pain, that is, when it was very severe.

In the year 1862, when his voice was suddenly disabled, he was suddenly attacked by a palpitation of the heart, and had great difficulty in breathing. This came on late at night and lasted until nearly morning, when he sank, exhausted, to sleep. On waking in the morning he experienced a *strange change*; he was not sure that he was really himself and is still under the same strange, indescribable influence; he said, "If it was possible for another and illy informed person to experience this indescribably strange alteration of one's thoughts concerning one's own identity, and then have some one gravely inform him that he was possessed by a strange spirit, I would not be surprised, if I were told that the person, experiencing this change, believed it; for I assure you I have looked at myself and about me, and have asked myself, if I was really dreaming or in my proper mind. I have spoken to very few concerning this, because I really dislike to mention it, fearing that others might think me either deranged mentally, or on the borders of insanity."

**Examination.** His voice had a peculiar shattered tone, entirely different from anything that I had ever heard. Upon his opening his mouth, for me to make an examination, I was astonished to find that the right side of the soft palate was completely paralysed and that the right side of his tongue was in a peculiarly atrophied condition; the



surface being raised into nodules. Figure 147—drawn at the time and frequently compared with the appearance in his throat—but imperfectly illustrates the appearance of his tongue and soft palate, they being in a worse condition than represented in the drawing.



Figure 147. Paralysis of the right side of the soft palate and atrophy of the right side of the tongue.

Upon inspection of the larynx it was seen that the right arytenoid process did not move, it remaining widely abducted. The left arytenoid process, on attempting phonation moved far beyond the middle line, but whether it went so far as to come in contact with the right arytenoid process and thus allow the two vocal cords to make the sound, I could not see. I did not think that it did so, for the reason that he could make no sound while the tongue was depressed or held in a position in which I could see the vocal cords. I think that the sound was made by the almost complete closure of the passage to the larynx by the base of the tongue, the excessive fremitus of that portion of the pharynx just above the larynx seemed to indicate this.

Dr. Elsberg had operated twice on the right arytenoid process removing a growth from it.

Upon inspecting the pharyngo-nasal cavity it was observed that a large quantity of secretion was lodged on the right side. This was also observed in the right nasal passage.

**Treatment.** I sprayed the nasal and pharyngo-nasal cavities, pharynx and larynx with a weak solution of carbolic acid in glycerine and water. Electricity was employed, the cathode placed over the epigastrium and the anode over the seventh cervical vertebra, this course was pursued once each day for two weeks, then three times a week until Jan. 22nd, 1870, then once to twice until April 22nd.

His hearing materially improved on the right side the noise being



greatly decreased. The secretion in the nasal and pharyngo-nasal cavity was very greatly reduced, but the tendency of its lodgement remained, even to the spring of 1873, the last time in which I saw him. He died about two years afterward. The whole of the right side of his body becoming involved in paralysis sometime before his death.

**1686.** Mr. S. M. H., of Bloomington, Ill., *æt.* 63 years, was recommended to me by Dr. Wm. McMurry, June 22nd, 1870. He had lost the use of his voice for about two years but had not much cough. About fifteen years before this, Dr. Chas. A. Pope had removed a large polypus from his right nostril. Since that time he had been in apparent good health, yet frequently liable to cold in the winter. During the winter previous to his visit to me, he had a very severe cold which affected his throat more severely than ever before.

Upon examination I found that the right arytenoid process was very greatly enlarged as represented in figure 148; the left arytenoid



Figure 148. Showing great enlargement of the right arytenoid process and also enlargement of the left process.

process was also enlarged but not nearly to the extent of that on the right side. The left arytenoid process moved slightly upon attempted phonation but never approximated that of the right side.

The treatment of this case was in all respects similar to the one above given. There was no improvement in his voice but his appetite increased and he gained considerable in weight. The treatment was continued until the early part of August, at which time he left me. In the fall of 1872 his physician informed me that he had died of an abscess in the left lung.

**1687.** Mr. W., of Springfield, Ill., *æt.* 42 years, sent for me on Sept. 29, 1870, to visit him at a residence of a relative in this city. I found him sitting up in bed, scarcely able to make a sound, and laboring with great difficulty to get his breath.

I made an examination of his throat and found that the arytenoid processes were both so much enlarged that they covered the vocal cords. The only thing that I could do at the time was to perform tracheotomy, which I did at once. Upon visiting him the next morning, I found that he had rested well during the night. I threw a spray of nitrate of silver, 20 grains to the ounce, into his larynx, using a spray producer No. 7. Large doses of quinine and strychnia were



administered daily for the next four days, with a nourishing diet consisting of beef tea and egg-nog. On the 5th of Oct. I passed a tracheal brush holding a solution of 20 grains of nitrate of silver through the larynx. This caused excessive spasms of coughing, but did not give the least relief. The treatment for the next three weeks consisted, as much as possible, in relieving the pain in the throat, giving strengthening food and tonics. He died on the 12th of November.

**1688.** Mr. Rob. R. K., of this city, *æt.* 34 years, consulted me Jan. 1, 1881. His voice became hoarse about Feb. 1880. He has always been subject to cold in the head during the winter, but had not no cough until the present winter. A few days before visiting me he expectorated a little blood which caused him great alarm. His nasal passages were almost completely occluded by enlarged turbinate processes. There was a stream of muco purulent pus flowing down the back wall of the pharyngo-nasal cavity and pharynx. For many years he had been slightly sick at the stomach on clearing his throat in the mornings, showing he had rhinal inflammation all this time. During November, previous to his visit to me, his uvula was excised with the expectation of relieving his cough. As this result did not follow, it was thought best to excise a piece of each tonsil which was done. For some time after this he was greatly relieved of his cough and throat symptoms, but these afterward increased to a still greater severity.

An examination of the larynx showed that there was an inflammation of the arytenoid processes and the left ary epiglottic fold. These were all of a very dark red color, almost blue.

**Treatment.** This consisted of the application of the spray to the nasal and pharyngo-nasal cavities and the pharynx, applying vasoline and a small quantity of carbolic acid, *gr.*  $\frac{1}{2}$  ad. vaseline  $\frac{3}{4}$  j. with the spray producer Nos. 4, 5, 1 and 2 used in the order named. With the spray producer No. 1 the *pinus canadensis* mixture, found in *rep.* **1062** with one grain of carbolic acid added to the mixture. This course was pursued daily until Jan. 15, at which time I used electricity, the positive pole on the seventh cervical vertebra and the negative pole on the lower extremity of the sternum. At this time the treatments were given three times a week and continued until about the middle of June.

Since June 1881 he has received fall and spring treatments up to the present time (1888). During last two years he has received no treatments, all carbolic acid being left out. He is at present in robust health.

**1688.** (a). Mr. N. F. B., of St. Joseph, Mo., *æt.* 49 years, consulted me Feb. 21st, 1881, for continuous sore throat and hoarseness.



His voice had been slowly becoming changed during the last two years, especially at the times he took cold. Since November 1880 and while on a visit to New York, he noticed that his voice had become very much changed, and that every effort to speak occasioned excessive pain and weariness, and with this there had been an excessive and tiring cough both day and night.

In speaking the sound from his throat through a stethoscope indicated a tumor in the larynx, but on inspection with the pharyngeal mirror no such growth was seen, but both of the arytenoid processes were quite large and their interference with the vocal sound may have given the voice that peculiar tone. This peculiarity of the voice was not noticed when he whispered. Because of this peculiarity I suspected a tumor below the vocal cords but most carefully repeated inspections failed to discover it.

His nasal passages were greatly involved in catarrhal inflammation and the posterior wall of the pharyngo-nasal cavity and the pharynx were studded with follicles. I gave him almost the same treatment as that given to Mr. Rob. R. K. as related above.

He made a good recovery and gained nearly 10 pounds in weight in three months. I gave him frequent treatments during each winter for several years. Between these times Dr. Richmond, of St. Joseph Mo., applied the same remedies with the same kind of spray producers.

In the spring of 1886, he took a severe cold which resulted in pneumonia. He was sick for several weeks with this complaint which finally ended fatally.

#### 1689. Reports of Cases of Laryngeal Papillomata.

Mr. H. C. P., of California, *æt.* 54 years. Brought to me by the late Prof. Paul F. Eve, on May 4th, 1868. He had a peculiar shattered kind of voice; while sounding very hoarse it appeared as though his breath was passing through a mass of loose flesh. He had been exposed very greatly in the gold mines in California and frequently stood for hours at a time in a cold mountain stream. Notwithstanding this he claims to have had no symptoms of cold in his head or throat, yet recollects to have expectorated a great deal of mucus during the times that he was most frequently in the water.

Upon examination of his larynx I am certain that I counted seven different tumors. I do not think that any of them were attached to the vocal cords. Most of these tumors were about one quarter of an inch in height and diameter, one grew from the left ary-epiglottic fold, and turned downward in quiet respiration so as to be partially in the glottis. When I saw this I asked him if he had not to be careful in taking in his breath, as a sudden act of this kind might give rise to a choking sensation. His reply was that I was correct. I



treated him a few weeks to accustom his throat to the use of instruments.

On June 2nd, I was successful in grasping the largest tumor. It came away very readily from its attachment, but the hemorrhage was excessive and produced coughing spasms that almost strangled the patient. I had him lie on a sofa as soon as possible after the operation, and thus allowed the blood to flow from his mouth instead of passing into his lungs. I sprayed ice water into the fauces. This soon checked the hemorrhage. Afterward a spray of the following solution was thrown down the larynx with spray producer No. 7. Muriate of ammonia grs. x, tincture of aconite root gtt. x, water and glycerine aa  $\bar{3}$  ss. This at once relieved the throat of all pain. I prescribed a large dose of quinine, an opiate and a laxative. The next morning he reported at my office feeling very well, and with much less disagreeable sensation in his throat than he had experienced for months.

That afternoon I removed another of the tumors, this was also followed by severe spasms and coughing. The management of the patient was the same as before.

Three other tumors were removed within two weeks. Although the removal of the last tumor did not cause great pain yet the patient concluded to allow the other two to remain, as the spasms after each removal became more and more severe. I gave him the usual treatment, at that time, until the 30th of July, at which time he returned to California. I have not heard from him since.

**1690.** Dr. John C., dentist of this city, *et.* 35 years, visited me July 26th 1870. During the previous winter he took a severe cold which affected his nasal passages, ears and throat. His throat had been weak for several years but had not given him any serious trouble until the last winter and since about the first of January (1870) he had been exceedingly hoarse; his cough had a peculiar rattle and was almost always spasmodic, so much so that several physicians thought he had the whooping cough. I treated his nose, throat and ears with a solution of muriate of ammonia, iodine and aconite root, this gave him great relief. His throat was always so exceedingly sensitive, that I could not get a view of his vocal cords, until the 10th day of August. At this time I saw a small papilloma on the right vocal cord. It was about one eighth of an inch in diameter and projected about the same distance. Fearing that he had had constitutional disease I gave him iodide of potassium from 5 to 10 grains three times a day. I also prescribed the laryx comp.

On the 18th day of August I succeeded, after several efforts, in removing the papilloma. The spasm following was so severe that he



dropped from his chair on the floor and his face became purple. While on the floor he coughed a large clot of blood out of his throat, which would have certainly have produced very serious consequences had he not assumed a horizontal position. I had him remain upon the floor for some time while I sprayed his throat with ice water. The hemorrhage ceased in about two hours. He was treated daily for two weeks with the spray.

His voice was very much improved, but his cough remained and was frequently so severe that he was compelled to leave his dental chair and lie upon a sofa.

He visited me from once to twice a week until the spring of 1871, at which time he went to California. In that climate he made a complete recovery, as I heard three years afterward.

**1691.** Mr. Geo. B., æt. 48 years, Superintendant of the construction of Rail Road Bridges. He visited me Feb. 5, 1872, on recommendation of Dr. Mudd, of St. Charles, Mo. His occupation demanded the constant and excessive use of the voice, which, as early as the October previous to his visit to me, was excessively hoarse.

Upon examination of his vocal cords I found that there was a long slim papillomatous tumor on the left vocal cord. It had produced a slight indentation on the right vocal cord apparently by its pressure during the acts of phonation.

**Treatment.** I treated his nasal passages which were very greatly affected, and had been so for a number of years, with a spray of carbolic acid, gr. 1, glycerine 3 ij, and water 3 ij. This was thrown upon the mucous membrane by the spray producers Nos. 4, 5 and 2, and the pharynx and larynx were treated with the spray producer No. 1, using the pious canadensis mixture with the addition of carbolic acid.

The difficulties encountered in reaching the tumor in this case, as he had a very long neck, suggested to me the instrument represented in figure 121. I had made frequent efforts on Feb. 7, 8 and 9 to grasp the tumor with the Semeleder forceps but could not reach the vocal cords without greatly depressing the base of his tongue, and this always caused contraction and closure of the fauces. After my ineffectual efforts on the 7th I gave Mr. Spackler the drawings for the tubular laryngeal forceps. These he had completed by the 14th, that is so far that I could use them. On that day I removed the tumor at the first effort. There was a slight spasm after its removal but the cough did not last but a few minutes. I treated him daily until the 24th then every other day until March 4th, at which time he left me. I heard from him about two years afterward. While his voice remained very hoarse, yet he had no other throat trouble.



**1692. Chronic Rhinitis; Tumor of the Larynx.** Rev. M. L. W——, æt. 35 years. "I was taken sick in Dec. 1877, with some trouble in my stomach. At times it would become swollen, as if I had a large potato in it, this swelling was a kind of a cramp and was exceedingly painful. I was sick for about three months.

"I began to get better in March, at which time I had a very bad cough, but did not pay much attention to it. My health was about the same through July and August, which months I spent in New York, for the benefit of the sea bathing. For quite a number of years I have been compelled to remain very quiet for an hour or two in the morning to prevent me from throwing up my breakfast in the effort to clear my throat. The sea bathing helped this symptom. I returned to Cincinnati in Sept., and during this month and Oct., I coughed a great deal and lost flesh rapidly. I was treated in Cincinnati for disease of the larynx. My physician said that I had no nasal disease. When I went to him I could still speak and sing very easily, after three weeks treatment my voice left me, then my physician informed me that I had serious lung trouble. In January, 1879, I went to New Orleans on account of my lungs, and there improved in general health. I staid there until the beginning of May. While in New Orleans, I first noticed the tumor in my throat. I had no pain in my whispering conversation. I did not consult a physician in New Orleans, but had learned to examine my throat with a throat mirror and a looking glass. I noticed that if I made but slight effort, I could make some pure tones; but if I forced my voice it instantly went away from me. [The reason for this was because the tumor was below the vocal cord, and did not come up between the cords, except during strong expiration, at which time it interfered with the voice.] In the beginning of May, '79, I returned to Cincinnati. I had my throat examined and two efforts made to remove the tumor, both of which failed. My physician stated that tracheotomy would have to be performed to enable them to remove the tumor. I did not submit to the operation. The efforts at the removal of the tumor greatly increased the pain in my throat. In June I went to Colorado. I did not have nearly as much cough while I was there, I gained very much strength and weight, gaining 23 pounds, making my weight 134 pounds. I did nothing for my throat; except using wet applications during the night. I remained in Colorado for three months, and was much pleased with the effects of the visit."

It is noticeable that he has not stated that he was very liable to take cold ever since his boyhood. This I learned from him during the course of the treatment.



Examination of the case proved it to be one of chronic catarrhal inflammation of the nasal and pharyngo-nasal cavities, the pharynx and the larynx, with a tumor under the left vocal cord, which was barely in sight during gentle respiration. Upon forced expiration with the vocal cords approximated, the tumor was plainly visible. It was a little less than a quarter of an inch in diameter. There was an indentation of both vocal cords, apparently made by the pressure of the tumor on the cords.

The **Treatment** he received did not differ from that of usual cases of severe nasal disease.

I made three or four efforts at removing the tumor with my laryngeal forceps, but did not succeed in grasping it. He remained with me about four months, during which time the tumor decreased to about one-quarter its original size. I recommended the continuation of the treatment of the nasal inflammation as the best means of removing the tumor.

His wife became an expert in using the spray producers, these she used as occasion required, up to 1885, at which time his voice regained nearly its normal force and tone.

**1693.** Mr. S. G. K., æt. 33 years, of Bloomington, Ill. He visited me Oct. 17th, 1883. For nearly two years he has had hoarseness and continuous cough. The hoarseness had been increasing during August and September. About the middle of August, he had an attack of pruritic catarrh, which resulted in a severe cough and asthma.

Upon examination of his larynx, a small papilloma was discovered on the upper side of the left vocal cord. In quiet, low conversation his voice had a pure tone; but upon raising his voice or using it loudly, the tone of the voice instantly changed, showing that under the latter circumstances the tumor interfered with vocalization.

**Treatment.** He received the usual vaseline treatment up to the 29th of Oct., on which day, after several ineffectual attempts the tumor was removed. There was almost no spasm following the operation. Local treatment to the upper air passages was continued for several weeks afterward.

His voice, while not perfectly clear, was greatly improved. He received treatments during the falls of '84 and '85, at which times his voice was still slightly affected.

I have not heard from him since he left me in 1885.

**1694. Ear Cases,** reported by Prof. Hiram Christopher, of St. Joseph, Mo.

**Deafness.** *Case I.* Arthur B—, aged about 6 years, had suffered from impaired hearing in both ears; but more in the left, for a



few months, when he was brought for treatment. The deafness was so great that he could not hear conversation, and when his mother read him stories he had to sit in her lap. Inflation of the middle ear by Politzer's method was the only treatment he had had, but without benefit. The cause could not be traced to any acute inflammation of the throat or middle ear, and nasal catarrh had not been noticed.

An examination showed the tonsils but slightly enlarged; but the mucous membrane of the pharynx and post nasal space showed a chronic inflammatory condition. The patient had doubtless had acute nasal catarrh of a mild character, and had suffered from indigestion, as made evident by the follicular condition of the posterior part of the pharynx. There was but little defluxion from the nasal spaces the tongue slightly furred, with some fullness of the pulse.

The **Treatment**, which was begun on the 8th of June, 1886, consisted of a one grain mercurial pill at night until the pulse became normal, and of daily spraying for three weeks, and afterward less frequently, until the end of July. No. 2 and my Eustachian spray producers, and No. 1, were the spray instruments used, and Resorcin vaseline the substance, in the proportion of 5 grs. to the 3j by vol of vaseline.

After three weeks treatment, he heard the voice in a rather low tone, at a distance of twenty feet. The cure was complete, and has so remained to the present time—Dec., 1887. The middle ear was inflated by Politzer's method but a few times, and after he had been treated by spraying a week.

*Case II.* A young lady, aged 19. Deaf in both ears. Watch heard only on contact; the voice only in loud tones and near. Had been deaf for six years. General health fair. Had post nasal catarrh, involving the Eustachian tubes and middle ears. Defluxion not profuse nor obstructive. Habit inclined to stimmung, with a mixed temperament. Pulse slightly full and incompressible.

The **Treatment** consisted of spraying daily the post nasal space and anterior nares with vaseline, medicated with resorcin and eucalyptol, and the administration of a one grain calomel, *pro re nata*, for three weeks, and then on alternate days for a week. The middle ears were inflated almost daily for two weeks. Left for home at the end of a month with her hearing so improved as to hear conversation, and the watch at a distance of twelve inches. The case was not well when she left; but she promised to return in the fall, which she failed to do. She came in the spring, but having had acute colds in the winter, was nearly as bad as at first. She was treated for a couple of months; but with no decided improvement. The case shows the importance of close watching and treatment when any lapse occurs, however slight.



She had never been troubled with disease in either meatus externus.

*Case III.* A case of pharyngo-nasal catarrh, attended by deafness in the right ear. A young lady, about 26, stoutly built, blue eyes and brown hair, and of fair complexion, when in health. Had scarlet fever in childhood, which was followed by slight deafness and frequent ear-aches in the left ear. Heard well in the right, but became suddenly deaf in this ear some four years ago. Found herself deaf on rising in the morning. Thinks she had had catarrh from childhood, the discharges being generally copious and free. Had been treated for the deafness in Montana, by Politzer's method only, without benefit. Had at the time of applying, a slight discharge from right meatus. She could not hear ordinary conversation, nor the organ in her church. Watch heard only on contact. Her general condition was bilious, but otherwise fair health. This condition was soon relieved by daily doses of the mercurous chloride in 1 gr. pill doses. The pharyngo-nasal inflammation was treated by the usual spray methods, and the Eustachian tubes opened by inflation by Politzer's method. The treatment was begun May 2nd, '84 and continued daily and at intervals until September, when she could hear ordinary conversation while walking with friends on the street, and at home. She was treated once since,—Aug., '85—because of fresh cold. She continues to hear well.

**1693. Eczema of the Auditory Meatus.** Reported by Dr. Hiram Christopher, of St. Joseph, Mo.

Miss C—, aged about twenty years, applied for treatment on the 13th of July, '85, for trouble in the right external meatus auditorius. On examination, the meatus was found to be filled with a white, soft substance, which broke upon removing it. After its removal the meatus was found eczematous from the outer surface, surrounding the meatus to the membrane. On examining the substance with the microscope, it was found to be *aspergillus*, a fungus growth finding its soil in the fluid of the eruption. The indications of treatment were therefore, to cure the eczema.

The treatment consisted of washing out the meatus daily with warm water, and the application of vaseline holding resorcin and boric acid, 5 grs. of resorcin and twenty of boric acid to the 3j by vol. of vaseline. These remedies failed to make much impression on the eruption, and the oil of cade in vaseline (3j to 3i) was used, and with the best results.

In the following April the eruption again appeared; but with little of the fungus growth. The oil of cade was used with the same result; but in addition she was given an aqueous solution of resorcin,



10 gra. to the  $\frac{3}{4}$ ; to be applied when the eruption should return in the slightest degree. This has had the effect of keeping down the eruption, and there has been no return of it to the present time—Dec., 1887.

**1696. Pharyngitis; Sub-Acute.** The following case is given by Dr. Hiram Christopher, of St. Joseph, Mo.

Mr. D—, aged about 35 years, applied, for trouble in his throat, on the 21st of October, '87. His voice was weak and husky, requiring an effort to speak. The tone of the voice resembled that which follows the inhalation of hydrogen gas. It was evident that he uttered words with difficulty,

On examination of the pharynx, larynx, and post nasal spaces, the vocal cords were found normal, the pharyngeal membrane was of a darkish red hue, with numerous small glandular points studding it. The same condition was observed to extend to the superior pharyngeal and post nasal membrane. The Eustachian tubes were not involved, as there were no aurial symptoms. Along the edge of the anterior and posterior pillars there were phlyctenæ—small serous blisters, about the size of bird-shot. There was pain about the angle of the jaw, and down the neck below, some pain on deglutition. On sounding notes, the voice was clear and melodious, showing that the cords were not affected. The complexion was dark, with an unhealthy look; the tongue furred, and pulse decidedly bilious and sometimes indicated fever. The bilious temperament predominated, and I judged that the patient was rarely entirely free from a torpid action of the liver. His lungs were normal. There was no fact in history warranting any fear of lung complication, though, without such a history, one would conclude, from his appearance, that there was the probability of a tuberculous complication. Appetite was fair, and bowels regular. His occupation, book keeper in wholesale house, but took sufficient exercise.

**Diagnosis:** The whole trouble of hepatic origin.

**The treatment** consisted of the nightly administration of a grain calomel pill, and spraying the larynx, pharynx and posterior nares with resorcin vasoline. These means were begun on the 21st of Oct., and continued daily and at longer intervals for a month, without much impression. The main symptoms continued with but little improvement. Finding that calomel was only temporary in its effect on the pulse (whose character is the chief indication for its employment) a blister over the liver was advised and applied. This was done on the 20th of Nov. On the next day the complexion was clearer than it had been at any time during the treatment. The blister was followed by calomel in a powder of two grains, repeated



twice. The voice recovered much of its natural tone and strength at once. The pharyngeal membrane lost much of its dusky redness, and the patient felt better in all respects. Since that time—the 27th of Nov.—the throat has been sprayed but two or three times, simply to relieve the sensation of dryness in the post-nasal space. He has continued to improve up to the present writing—Dec. 14—and continues the calomel pills when there is the least return of the dusky complexion, as that is the first to be affected by the hepatic torpor or functional disturbance. The mercury with another application, probably of the fly blister, will restore him to his usual normal condition.

Since the application of the blister, he has been kept on the following pill: R Quinidæ sulph., Ferri sulph. exsic., ex. hyoscyamus, each 30 grains; made into 80 pills, two pills to be taken twice a day, and a calomel pill at night when required, as indicated by the pulse. I have found the dry sulphate of iron in these cases preferable to any other salt of iron, when the state of the liver permitted its use.

**1697.** Auditory Vertigo. See topic **1446 (a)**. This patient was accompanied by his physician, who is now treating him very successfully.

**1698.** See topic **1446 (b)**. This patient was under treatment for a few weeks, and as he did not improve, he tried the climate of Arizona. He died there of apoplexy in about one year.

**1699.** See topic **1446 (c)**. This case is taken from Hamilton's *Nervous Diseases*, page 140.

**1700. A Case of Slow Progressive Deafness.** Miss M. E., æt. 23 years, consulted me Sept. 15, 1881. She complained of a slow loss of her hearing and of irritation of the nasal passages. The following is her history as given by herself:

When four years of age catarrh developed itself in my head. The discharge since I can remember has been profuse and at times very offensive.

The character was that of large green lumps, hard and parts of it perfectly dry. So large that it required all my strength to dislodge them. While there were times that I could not dislodge them without inserting my finger into my nostril and tearing away part of the accumulation that had been forced through the small passage in the nostril. At others the lump was of such size that no part of it could be forced through, but after waiting some time a mucus would seem to accumulate in the cavity and then by using all my strength it would be dislodged, often streaked with blood and sometimes breaking the lining membrane of the nostril, causing my nose to bleed quite profusely. This was the character and nature of the disease for as long a period back as I can remember. During the winter I would almost



always have a cold and would be hoarse, so that I could not speak aloud sometimes for two or even three weeks at a time. My throat was often very sore, and the family physician cauterized it so frequently as to almost entirely destroy my tonsils. I do not remember to have been much, if any, troubled with this accumulation falling back into my throat at night, but during the day, when in school or where I could not expectorate it, the mucus has fallen into my throat and almost choked me with the size before it was swallowed. I do not remember to have what I supposed was catarrhal headaches. I think the greatest inconvenience was experienced from the unpleasantness of being obliged to pay so much attention to my nose and from its offensiveness. About twelve years ago I first began to sniff water in to my head to help loosen the lumps that had accumulated. I used a weak solution of salt and water but this seemed to hurt my head more than clear water and from that time to this, I have mostly used clear water. When first using the water I remember to have felt a fullness and pain through my forehead and in my eyes, but after a time, I do not remember how long, this sensation was not experienced and my head felt so much better after it was thoroughly cleansed that I could not think of allowing a day to pass without cleansing with the water. Since using the water or for the past six years, perhaps the lumps have not been as large as formerly. I thought perhaps my head was growing better gradually from being kept clean. Three years ago I went to Colorado. The first winter there I had the worse cold I ever have had. The accumulation was profuse, very, and the membrane of my head and nostrils so tender that I could not use a handkerchief at all without it being stained with blood from my head or nostrils, this cold lasted for some weeks. The following spring or summer I began to notice that I was growing a little hard of hearing, only so much so, however, as to be a laughing matter. In the fall I began to be more so, and in January and the spring, two years ago, I was so much so as to become alarmed about it, I was so deaf two years ago, the past summer, as to be unable to hear ordinary conversation and in Nov. two years coming Nov., I came home from Colorado and began treatment with a catarrhal specialist in Peoria, who it was said, had performed some wonderful cures of deafness. I was treated four months with no very noticeable good results. Then in May following I commenced treatment with a homœopathic catarrhal specialist. From his treatment I think I derived some benefit. During this treatment I used medicine in an atomizer and after using it for some months the accumulation was very much lessened, I used it three times daily thus keeping my head perfectly clean. After using it for three or four months there would form on the back wall of my throat a thin yellowish white coating which I thought was old dead



skin. I could not remove this except by wrapping a soft cloth around my finger and rubbing it off. This substance I could spread out over my finger just like a thin skin. Whether it were skin or mucus I do not know. I took that treatment ten months, not knowing what else to try, and his charge was so very reasonable I thought better to use it than nothing. Last spring this dreadful roaring came into my head. I was nearly crazy with the noise and some one suggested treatment at Hot Springs. I went there May 6th and was treated four months. After which I came to St. Louis hoping still to find the one kind of treatment needful to cure my case. While at Hot Springs I was relieved of this great noise in my ear and it had not returned until since I came here. There are at all times half a dozen distant noises in my ears. Some times, and days being worse than at others. I have never been troubled with dyspepsia as a result of the disease, and suffer no pain in any part of my body that so far as I am able to judge is the result of the catarrh. I never had, when a child, an ear ache; but six years ago I had in Nov., a sore throat but I did not think it serious. One morning after snuffing water into my head I tried to clear my throat of accumulated mucus and I thought I felt something tear in my head, low down and back of the ear. It did not hurt me then or afterward but about four o'clock that same day I felt a burning in my ear when I swallowed. That night I had a terrible earache, all the old remedies were tried to relieve, but with no effect. The pain continued until I was nearly distracted, when after making hot applications to my head, the ear began to discharge and I was relieved. This discharge continued about three weeks when it gathered the second time. I suffered more with the second gathering than with the first, my ear and head were swollen on that side until the creases were all taken out of my ear. After this second attack I was as deaf almost as now, for a few weeks, then recovering my hearing and never having any more trouble with my ears until the time mentioned. The first treatment you administered I thought my head felt better for a short time but after yesterday's treatment I thought I felt a little pain in my forehead. This lasted an hour or two and the noise in my head was so much worse all day and last night the "bad" roaring came back, a part of the night, then leaving, and returning this A. M. I am discouraged many times, but oh! Doctor if you can remove this awful noise by curing my head I will be more than grateful. Hoping this may prove to be satisfactory.

**Treatment.** She received the usual treatment with but slight improvement as to hearing; but the tinnitus was greatly relieved, and the catarrhal inflammation almost entirely subdued.

#### 1701. Patulency of the Eustachian Tube, or Otosalphinx.



Mrs Patti C—, æt. 25 years. July 11th, 1876. She visited me because of excessive deafness of the right ear. After some conversation with her concerning her symptoms, it was learned that the Eustachian tube was abnormally open, and that her voice went strongly to the ear. She says:

"I felt this first about three weeks ago, at first the sound seemed to come right out of this ear. This was so strong, that I asked my mother if she heard my voice through the right ear. The sound seemed to come strongly from the ear, with a kind of pressure outward; but sometimes the sound felt as though it was behind the ear. All this time my ear seemed stopped up, pressure on the ear relieved the sensation for a short time; but it came back again. When the ear is stopped up in this way I can't talk. I find that by wetting the corner of my handkerchief in my mouth, and boring it into my ear, that this stops it. I notice that sawing mostly always brings on this sensation again. Sometimes, by opening the mouth wide and moving the jaw to the opposite side, or in some peculiar way, will relieve it. Once or twice yesterday, I stopped it by gaping. The hearing is always duller when my voice goes to my ear. Yesterday I had the sensation for about four hours, and all this time my breath sounded as though I was blowing into a large bottle. My ear has a dry sensation."

I treated this patient for chronic rhinitis in the spring of 1870 the treatment was continued for about two months and a half. She had very large encrustations in both nasal cavities, which I had treated with the catheter nasal douche and the warm spray producer, *æ* 114. At this time this instrument was quite a favorite with me, till I found from experience that the warm air was liable to cause the patient to take additional cold.

It was upon this patient that I first used cosmoline as an application. In two years afterwards, I made my first application of eucaine on her (1872).

On the occasion of her last visit to me, (1876) she received about three weeks treatment, receiving in all about eight or nine treatments. I have seen her several times since, and she has remained in good health.

**1702. Patulency of the Otosalphinx.** The Eustachian tube as it is commonly called, is a very peculiarly shaped canal. The peculiarity of the shape consists in that while it resembles a collapsed tube, whose inner walls are vertical, there is in nearly the whole of its length, along the upper part of the slit formed by the collapsed sides of the tube, a small capillary opening, whose walls are never in contact at any time. A cross section of this passage resembles a but



ton hole in a dress coat, the sides of the slit or button hole are in apposition, while a portion of one end of the slit is formed into a small opening which remains patent.

The air permeates the tube through this small capillary opening, and is drawn into the middle ear and mastoid cells because of the rarefied condition of the air in these cavities, the mucous membrane lining them absorbing it, which causes the rarefaction. It is thus seen, that it is the inequality of air density that is the cause of the uniform renewal of air in the tympanic cavity and the uniform concavity of the membrana tympani. *If such is the fact, how can the Eustachian tube "conduct away the secretion of the cavity of the tympanum" as was said by Rouss, Rüfinger, Foster and Buck?* Besides this, the opening into the tympanic extremity of the Eustachian tube is fully two lines above the floor of the middle ear. How can this tube be used as a means of drainage? Again, there is no proof that mucous membrane—healthy of course—in any part of the body, secretes more mucus than is essential to its function; therefore, as none need be conducted away from it, no mechanism is required for this purpose. It is as absurd to say that nature provides a drain for a catarrhal middle ear, as it was to say that the function of the uvula was to lead the catarrhal secretions from the post-nasal cavities on the base of the tongue instead of allowing them to drop into the larynx. The following is the history of a patient who suffered with an abnormal open condition of this ear-air-canal:

Miss H—, æt. 22 years, consulted me in March, 1875, for deafness and sore throat, she says:

March 29th, a short time after rising, I experienced a singular and uncomfortable sensation in my throat and ears, appearing to be consequent upon clearing my head. There was a fullness and pressure as if the blood were being pressed upward and outward; the pressure seeming forward of the jugulars, and not exactly like a rush of blood to the head. (I understand what *that* means). Directly I felt my hearing affected. I swallowed again and again in hope of relieving the trouble, but without effect. My first impulse was to force the air into the Eustachian tubes and try their condition, but the sense of pressure, I cannot give it any other name, was such that I feared to try the experiment. Pressing my fingers below and behind the ears gave them temporary relief. The difficulty of hearing continued all day; my head was hot and feverish, even to the outer rims of my ears, and my voice unnatural to me—it appeared to echo in my head—school work part of the time was almost painful. I could detect errors in singing rather by their producing in the brain a sensation akin to pain than from any other cause, but found myself utterly un-



able to correct such errors by giving proper pitch, because my ear would not tell me the truth. Evening—somewhat better. My head as large, weary and full as yesterday, with, if any difference, increased pressure in my throat accompanied with a feeling of external enlargement, so that I felt a disposition to stroke it downward, as if to remove a swelling. Same trouble in singing—voice very weak. No improvement in hearing—sounds are confused—I am obliged to ask a repetition of what is said to me. For some days I have been annoyed with a constant catarrhal dropping into my throat, the discharge from the nostrils slight."

March 29, 4 p. m.—On examination I found acute inflammation of the pharyngo-nasal cavity. The spray, from the producers Nos. 4, 5 and 8, indicated on page 451, was applied very thoroughly. Ten grains of quinine and a laxative were prescribed. The effect of this application was to lessen the heat and fullness in the head. Inflation by Gruber's method was then practiced; this had to be done very carefully as the membranes of both ears were very sensitive.

This course was followed about three weeks. In four days all disagreeable symptoms had disappeared. The constant current of electricity was employed toward the close of the course.

**1703. Another Case.** Mrs. W. K. *æt.* 36 years, consulted me in March, 1876. "I have experienced peculiar and disagreeable sensations in my ears six or eight different times, either when I had a cold or while taking cold, which I can hardly describe; at such times I could not tell in what tone of voice I was speaking, and the voices of others sounded as though they were speaking in a cistern or a large vacant room. I could relieve the uncomfortable sensation for a short time by closing my nostrils and then breathing as though I were drawing my breath through them, or by certain movements of the under jaw, which would seem to open (or close) some little valve, and for awhile I would feel better, but breathing or speaking would shortly bring it back. These attacks have never lasted long, and it has now been nearly a year since I was last troubled in that way."

**1704 Another Case.** Dr. Chas. L., a very well informed physician of Kansas City, Mo. "About February, 1877 I was taken down with *Tonsillitis*, the inflammation being chiefly confined to the right side. After about eight or ten days the inflammation passed off through the Eustachian tube and out through the middle ear, causing severe pain. There was suppuration and rupture of the tympanum, the suppuration continuing two or three days. The only relief that I could obtain was by hot water injection into the outer ear; as the inflammation passed out of the ear there was considerable swelling behind the ear over the mastoid cells, gradually the swelling proceeded forward



and terminated in erysipelas, which spread all over my face, closing both eyes, and extended all over the scalp, causing a deal of pain. As the erysipelas passed off I noticed every time I spoke that the sound of my voice seemed to pass out through the right ear. I could hear my breath in the ear; I was slightly deaf in that ear; there was a feeling of openness in the Eustachian tube; every breath I took, every sound I made seemed reflected to that ear; although it caused no pain it was exceedingly disagreeable, more annoying than even pain would have been; it was several days before I found any means of relief; I found that by turning my head over to the right as far as possible and then swallowing, that it seemed to close the tube, and I obtained relief till I swallowed again, which immediately open the tube and noises commenced again; also that by holding my nose and swallowing I obtained relief until the next full swallow. These methods were the only modes of relief. I occasionally syringed my ear out with a warm solution of salt and water, and within two weeks after the rupture of the tympanum it was completely healed; I commenced treatment under Dr. Rumbold about a week after I noticed the noises in the ear; after treatment for about ten days almost all the trouble had ceased; in the commencement of the trouble, by holding my nose and blowing, the Eustachian tube in the right ear was opened by the slightest breath, showing that there must have been enlargement of the tube, swallowing, yawning, blowing my nose, even slightly, opened the tube and caused a cracking, popping sound which was relieved by turning my head to the right side and swallowing. The only relief obtained from turning my head to the right side was that it allowed the mucus engorgement in the tube to run out in the middle ear, where it was absorbed. I had no pain after the noises of the ear commenced; these noises sounded as if my head was in a closed box, causing an echo or reverberation in the right ear, the two sounds being almost at the same time, one so slightly ahead of the other as only to be able to distinguish that there were two sounds. Stopping up the outer ear and blowing my nose did not cause opening of the tube."

**1705. Chronic Rhinitis with Inflammation of the Ethmoidal and Sphenoidal Cells, the Frontal Sinuses, and the Ear air-canals and Middle Ears.** Miss Clara W., æt. about 27 years; consulted me on Oct. 15, 1885, at the recommendation of Dr. Wm. Dickinson, of this city. As seen from her history, she early in childhood became the victim of scarlet fever, the sequence of which, blighted her whole life. Along with this early ailment, adversities in her father's financial affairs had a very depressing effect upon her, mentally, which, as is usually the case, assists all catarrhal affections in making inroads upon the sufferer's health. The following is her history written by herself:



"When about seven years old I had scarlet fever. From that time on I suffered with severe earaches—occurring in the winter as often as once a week. I did not notice that I was hard of hearing until near my tenth year, I then discovered that I misunderstood so many things that were said to me at school, and was accused of inattention by my teachers, and was often reprimanded by my parents for not replying when spoken to, when really I was not conscious of having been addressed. From this time on the earaches ceased, but the hearing of my right ear failed all the time until, when about seventeen years of age, I found that I could not hear a watch tick when placed close to my ear. From the time I had the scarlet fever, I've been subject to fearful colds in my head, occurring at all seasons of the year. I take cold apparently without any cause. I can always tell a few days before these colds manifest themselves, that I have taken cold, by a tumescence in the interior of the ears, as if the ears are swelling so that they were entirely closing, and by an extreme itching. This itching I've always experienced. When a child I would procure all the stiff tea-bags I could so that I could allay the itching by inserting the tea-bag into my ears and turning the tea-bag round and round. I could scarcely endure itching. The cold would then manifest itself by incessant sneezing for a day, and then the discharge of thin watery fluid from the nostrils. These colds are three days coming, and as many more in disappearing,—reaching their height the third night. By this time I'm completely worn out, my nostrils and upper lip have become so sore from the poisonous fluid, that I can no longer use a handkerchief, but insert cotton into my nostrils, and as soon as the cotton becomes saturated, replace it by fresh cotton. I go to bed lie on my back, and keep a towel wet with water over my entire face to ease the pain that is over the eyes—in the eyes, nose, and cheeks, until within the last three years these colds did not affect the hearing of the left ear, but since the first cold that did affect the hearing of the left ear—every cold since then makes me almost entirely deaf, and my hearing does not return until nearly two weeks. But I noticed that my hearing would return as good as usual until last summer—and since then I've been constantly losing hearing, cold or no cold.

Sometimes a popping sound occurs in my ears, like a cork leaving a soda bottle, and for a second afterwards I'm entirely deaf. Then a pulsation begins, and with each pulsation the hearing returns."

Upon a careful examination of her case, I gave a partially favorable prognosis; saying that I thought her hearing would be improved to a small extent, and I was almost certain that the catarrhal inflammation would be checked, so that she could save the hearing that she then had.



Although the tuning fork was heard slightly better in front of the ear than when placed over the mastoid process, yet, as I have had marked improvement in the hearing under these circumstances, I thought there would be improvement in this case also, but such was not the case, as a few weeks treatment demonstrated. The air douche, although slightly improving the hearing upon the first occasions of its being used, soon had a bad effect upon the hearing, and the sensations in the ear. It also occasioned a tinnitus aurium.

The treatment was that for usual chronic rhinitis. Constitutional treatment was also given. While the rhinal inflammation was greatly relieved the hearing did not improve.

**1706. Eye Complications.** See topic 1441 (d). This patient has recovered completely; her eye is now as sound and strong as the other eye. She will require a few treatments, fall and spring for several years to come.

**1707. Eye Complications.** The history given in topic 1441 (d) was given me (in 1872) three weeks after she began treatment. Her's was a case in which the nasal passages were so greatly involved, as to overshadow, for the time being, all other symptoms affecting the eyes, ears, throat, lungs, heart and stomach. I learned after she had been under treatment three months, that she had palpitation at such times only as she had pain in the throat and head, and had dyspepsia when she suffered most from her eyes and ears.

Her pharynx was not at all sensitive, so that I had a good chance to give her effective treatment from the commencement of her visits.

The pharyngo-nasal cavity was a dark, bluish red. The whole surface, as well as the posterior nasal cavities were coated with a tough-adhering muco-purulent secretion. The vocal cords were as red as, the surrounding mucous membrane, yet this membrane was not nearly so highly congested as was the membrane in the cavity above. The turbinated processes were greatly hypertrophied, so much so, that one nostril was constantly closed during the day, while, as soon as she retired for the night, both nostrils closed on assuming a horizontal position, and remained so until she arose. The conjunctiva of the lids of both eyes was inflamed. The ophthalmoscopic appearance of both eyes indicated a hyperæmic condition, the left eye being the more affected. The blood vessels were three times as numerous as they should have been. Both membrana tympana were excessively concave. The hearing in the left ear,  $\frac{1}{4}$  with the watch, yet her hearing for conversation was but little affected, showing that the watch is far from being a good guide as to whether the ear is in condition for hearing, in the right ear the watch was heard  $\frac{3}{8}$ .



The following course in local treatment was pursued:

Oct. 5, 1872.—The Catheter Nasal Douche was employed to cleanse the nasal cavities, as the previous use of the spray producers proved ineffective. About one-half pint of warm salt water (3j ad j O.) was used in each nostril. This was effectual in cleansing the mucous membrane, but caused some headache. The douche was not used again, as the spray producers were sufficiently effective in cleaning and applying the remedy at the same time. The remedy applied by spray producers, Nos. 2, 4 and 5 was:

	R.	Aqua	℥i.
		Glycerinae	℥ij.
		Am. Hydrochloras	grs. x.
M.		Acid. Carbolici	grs. ij. ss.

Of this I sprayed about half a drachm into the pharyngo-nasal and posterior nasal cavities. It produced some pain, proving it too strong of muriate of ammonia. I would now prefer the prescription as given on page 451. However this application was made every other day for two weeks, modified in quantity by the sensations or pain produced. Then twice a week for twenty weeks, then once a week for five months longer.

The tinnitus was relieved by the application of the constant current, the negative pole being placed on the lower extremity of the sternum, and the positive applied to the ear, by means of an ear electrode made of hard rubber, the meatus being first filled with warm salt water (3j ad Oj). The intensity of the current was so low that it could scarcely be felt when first applied, then increased until the tinnitus was obliterated—which was usually the effect—or was changed in tone to a lower sound, but at no time was there the least distress produced, or other disagreeable symptoms. Constitutional treatment given during the whole course.

The immediate result of this course of treatment was to greatly ameliorate all of her disagreeable symptoms. She was, after the long course, treated in the spring and fall, when she took cold. From 1874 to 1876, I applied cosmoline to the anterior nares. From October, 1876, up to the time of her last treatment, I have applied the prescription on page 451. This she thought a great improvement on the local application given in 1872.

**1708. Eye Complications.** See topic 1439. This patient is still under treatment. She made a quick and complete recovery.

**1709. Eye Complications.** Mr. J. I. D., æt. 31. "I herewith detail to you the symptoms of the disease with which I am afflicted. I will probably feel bright and well for a week, cheerfully perform my duty, and be pleasant in disposition, when, all of a sudden I feel



a pain in my forehead extending on the top, sides and back of my head, at the same time my right eye is affected, and becomes unsteady. When I get this pain, my mind is wrapped in a stupor, and my memory not very fresh, and a humming in my ears at intervals. I then feel despondent, and it seems that I am indifferent to every thing, and at such times feel uneasy, and I try to be cheerful but of no avail—as soon as the pain in my head leaves me I feel as if I had awoken from a dream, feel buoyant, work with pleasure, and then hope and wish that I may never be troubled with this pain again. I have in the foregoing stated to you, as near as possible, how I am affected.”

This patient visited me on Sept. 9, 1875. His prominent symptom at the time was difficulty in breathing through his nostrils, and frequent headaches.

His treatment consisted in the application of the spray of the pinus canad. comp. using about two and a half grains of carbolic acid to the ounce, (this was too strong), and the cosmoline, as well as constitutional treatment, consisting of a tonic, laxative and diuretic.

He fully recovered in three weeks time, from all the symptoms of which he complained but continued treatment full six months. The last three months of the time he received but one treatment a week. Since then he has received from two to six treatments at most every fall and will require as many each fall, probably, as long as he lives. At present, and since the spring of 1876, he enjoys excellent health.

**1710. Eye Complications.** The patient, whose history is given in topic 1441 (c), was treated as follow: When first seen, (in 1872) his throat was so sensitive that it was with difficult and patient endeavor that I finally obtained a view of the pharyngo nasal cavity. I found I had to spray his nasal passages with a solution containing one-fourth per cent of carbolic acid. After having inhaled about one draw of this mixture through his nostrils into his lungs his throat was not quite so sensitive. But he had made ten visits before I was able to make a thorough application.

His treatment lasted for about seven months, being treated every day for thirty three days, then every other day for three weeks. The remainder of the time, once in from five to ten days, as he felt he required relief from his symptoms.

At the end of this time he was relieved of all sensation of dizziness and his eyes had so far recovered as to enable him to read without difficulty, however felt the effect of too great a strain on them.

He received twelve treatments the next fall, one once or twice a week. The next spring he was not treated but should have been. After that time he was treated fall and spring until May, 1879. At this time he had completely recovered in every respect and had gained



in weight from 188 to 195 pounds. I treated two of his brothers and a sister, whose eyes were affected in a manner similar to his, but not in so aggravated a form. The only application I made to the eyes of these patients was plain vaseline. Thus they applied themselves whenever they felt they required it, the indications being an unpleasant sensation of the lids or in the eyes.

**1711. Arm Complications.** Mr. C. T. R., a printer, *æt.* 23 years, visited me on Jan. 15, 1875. "Two weeks ago tonight I became intoxicated; staid out most of the night 'making calls.' When I got home I was very tired and laid down on the bed with my clothes on. Next morning I found on washing my face that something was the matter; looked in the glass and saw my mouth drawn to one side; I called on a doctor, who told me that I had paralysis of the left side of my face; he gave me a prescription; this I did not take; called on another physician, who examined me, then gave me a prescription to operate on the bowels. The medicine did not operate, but caused pain in my head. This pain continued to increase until it got so severe that I could not comb my hair. I have not combed it since last Monday (five days ago); since yesterday morning the pain in my arm has got so very bad that I have not slept, although the last doctor that I went to, gave me an injection of morphine in the arm. Every time I shut my teeth together it hurts on the top of my head. I feel as though I must get rid of this; if I don't I'll jump off the bridge."

The first application made by the spray producers Nos. 4, 5 and 2, using vaseline and pinus comp. (three drops), used as mentioned on page 451, relieved him of much pain in the head. In two weeks—daily applications being made—every one of the prominent symptoms had disappeared.

Of course a complete cure of such a case could not have been in this short time. The patient did not make another visit.

**1712. Morbid Fears.** See topic 1456(a). This patient made an excellent recovery. He received about thirty treatments during 1884, nine in 1885 and nine in 1887. He will require additional fall and spring treatments.

**1713. Morbid Fears.** See topic 1456(b). This interesting history she related to me after having been some time under treatment. The pharyngo nasal and nasal cavities were a black blue color, as dark as seen in the tobacco smoker. On the basilar portion of the occipital bone was an opening which appeared to have been an abscess or the atrophy following a prolonged inflammation. From this opening depended a string of tough offensive mucus. Another, but smaller string was noticed flowing down the superior surface of the soft palate. Her tonsils were slightly enlarged. I treated this case a great many



years, and I learned from it more than from any other, how to treat this insidious, tenacious, but common disease.

It would not be instructive for me to relate how I waded through the long list of remedies recommended in the medical journals of the day. I soon learned that *mild* application, combined with thorough cleansing afforded most relief. But it was not until I commenced making applications with cosmoline that I gave thorough and efficient treatment, without the fear that the secondary effects of the applications might be more unpleasant than the primary effects were relieving.

Her recovery was complete, yet slow. Had I, at that time, had the experience in treating that phase of the disease that I now have, I do not hesitate in saying that every symptom of which she complained would have been subdued in six weeks treatment, instead of nearly a year, as was the case.

She was treated ten times in 1881, four in 1884 and two times in 1887.

## CHAPTER IV.

### REPORTS OF CASES AGED FORTY YEARS AND UPWARD.

1715. This grade or class embraces those chronic cases that require treatment nearly every fall or spring during their lifetime.

I have no hesitancy in saying, considering the large number of persons afflicted, that this grade of catarrhal complaint represents a greater amount of suffering than any other disease we treat, because of its complications. Yet these patients receive from the profession less aid and sympathy than any other class. They apply to their medical adviser, who discourages treatment and makes light of their symptoms. Then they have recourse to the nostrums advertised in public prints, each and every one of which are "sure cure." Failing of a cure, they afterwards seek other medical advice. While fitting from one physician to another endeavoring to obtain relief, the in-



flammation will have, more than likely, extended until some important organ is implicated. Finally, when they come to "shuffle off this mortal coil," though death be the result of another disease, this complaint will have performed its share in hurrying on the final catastrophe.

1716. The question may be asked, why must treatment, at each change of the season, be continued indefinitely; why cannot these patients be cured by several months, or at most several years appropriate treatment?

The answer to the first part of the question is, that a treatment that will subdue the symptoms and leave the patient unconscious of any affliction in the head, or in any organ connected with it by important nerves, is all that local and constitutional medication can do; the remainder must be left for the reparative processes of nature alone. And right here comes the answer to the second part of the question. The reparative powers of nature are not equal to the task of bringing back to the normal condition those blood vessels, nerves, glands, etc., that have been from fifteen to forty years becoming abnormal. The changes made in this long period are too great, too permanent to be transformed to the normal condition by several months' or several years' treatment of any kind, or even during the last third of a patient's life. While this is true it is possible to so treat this class of patients by a few appropriate applications each fall and spring, or each fall or spring, that they can be maintained in such good health that they will experience but little if any annoyance from the complaint.

1717. *This is what I call successful treatment of this class of patients, and in my opinion, this is the most that can be done for them. When this is done, they live entirely exempt from the excessively distressing symptoms that this disease entails, but not exempt from future liabilities to attacks of cold, which, if not treated by appropriate local and constitutional medication, will again bring on even worse than the former distressing symptoms.*



**1718. Chronic Rhinitis.** Wm. S—, æt. 48, desired treatment, Sept. 13, 1866, for a large gelatinous tumor located in the left nasal cavity. A portion of the tumor protruded from the nostril and another part could be seen by the pharyngeal mirror, hanging down behind the soft palate. There was a continual flow of purulent secretion from the tumor, and, upon inspection of the right nasal passage, large incrustations could be seen in this cavity. He had lost weight during the last few weeks; his appetite was poor, and he was very much downcast from thinking that he had a cancer in his nose, as well as consumption in the lungs. His whole system was out of order. He could not sleep but a short time, as the secretion in his throat had a strangling effect.

**Treatment.** The polypus was taken out at once; it came away remarkably easy, having but a very small pedicle, which was attached to the middle turbinated process. The right nasal passage was cleansed with warm water, thrown there by a syringe. The effect of this procedure had a wonderfully exhilarating influence upon the patient.

Sept. 14. My patient was so very happy that he became intoxicated not only with his good luck, but with some kind of alcoholic liquor, which increased the inflammation of his nasal cavities. I sprayed these passages and his throat with a weak solution of chlorate of potassa.

Sept. 15. Had him inhale the fumes of muriate of ammonia. This was continued until Sept. 22. After this his nasal passages were washed with a weak solution of muriate of ammonia, about three grains to the ounce, using a syringe. This produced a sharp smarting sensation, but the after effects were satisfying to the patient. This wash was employed every other day for nearly three weeks, at which time the patient passed from my knowledge.

**1719. Chronic Rhinitis.** Thos. J—, æt. 42 years; consulted me, March 9th, 1867, concerning a "brow ague," and great discharge from the nostrils. His general health was good. The pain in the forehead had troubled him for about two weeks, but the nasal discharge had existed for nearly three years.

**Treatment.** The injections of warm salt water, and about three grains of muriate of ammonia to three ounces of the salt solution; gave him great relief. This application was continued for one week daily, then twice a week for three weeks. The patient leaving entirely well as he claimed.

On April 22, 1869, he came back again. The discharge in his nasal passages had never been so great as at his first visit, but had not ceased entirely. He now complained of a cough and sore throat, I



prescribed a simple cough syrup for his cough, having muriate of ammonia in it. I sprayed the throat and nasal passages with a solution of iodine, gr. j; iodide of potassium, grs. ij; muriate of ammonia, grs. iij; water and glycerine, aa ʒj. M. About fifteen drops was used at each visit in the throat and each nasal passage. This was repeated every other day for four weeks. The effect seemed to be quite beneficial.

Oct. 12, 1878. He again applied for treatment for his throat symptoms. He received seven treatments on this occasion, and three in April, 1881, since which time I have not seen him.

#### 1720. Chronic Rhinitis with Gelatinous Nasal Polypi.

April 26, Judge S. T. G., consulted me, for relief of a persistent desire to clear the pharyngo-nasal cavity, by very forcibly drawing the air through his nostrils into his throat. This "sneezing," disagreeable sound he produced from three to five times and then hawked from his larynx about two or three times before expectorating the secretion dislodged from the surface of these cavities. This procedure was gone through about every half to three-quarters of an hour during the entire day, whether he was in his office, on the street, in the street car, in the court room, in church or at his home. His general health appeared to be good; his appetite was excellent, and he slept well, and could attend to his extensive law practice to his entire satisfaction.

On inspecting his nasal passages a gelatinous polypus was seen in each cavity. His tonsils were somewhat enlarged. I observed that his uvula had been excised, so as to leave a slight notch in the soft palate. He informed me that for nearly half a year he experienced great difficulty in speaking in court; after he had his uvula cut off. He could not then say what words were the most troublesome to pronounce, and did not know that he ever knew, but he attributed his disability to the operation.

1721. Chronic Rhinitis with Mental, Stomach and Lung Complications. Mr. Geo. H., wt. 40 years. He called upon me in February, 1883, complaining of excessive pain in the left side of his nose, the left ear and in his stomach. When quite young he had ear ache almost every winter, and coughed so severely that he frequently threw up. He had always been very liable to take cold, and the last four or five years, since which time he has not had a cold that he knows of. The pain in his left nasal passage comes on suddenly and is very sharp and piercing, causing him to "duck" down his head. Sometimes he has this pain in his stomach, and, strange to say, he is not sure whether the pain—that is at its commencement—is in the stomach or the nose; a few times he thought it was going to his ears.

The most peculiar and interesting of his symptoms were those



that affected him mentally. He says: "I have a confused noise in my ears or head, sometimes I think that it is in the ears and sometimes the head." In answer to the question as to something that the noise resembled, he said: "It sounds like almost any kind of a noise. The noise is in the ears now (turning his head a little as if in the act of listening), yes, it is there now, it sounds like a mixture of a tune and a voice of a person, but the voice is so indistinct that I can't make it out. When I lie down it almost always changes; if I have had good luck, so that I am pleased, the sound is like a tune, if I have had bad luck, the tune sound changes to an angry, snappish, scolding voice. This has lasted for about two years. If the weather changes to a damp and disagreeable condition, then it is much worse.

"Last winter I coughed up a large quantity of blood; the doctor said it came from my lungs, and gave me cod-liver oil. I took two gallons in three months."

When asked if any of the blood came out of his nose, he said that it all came out of his nose when he sat down, but when he stood up it made him cough and then it came out of his mouth; showing that the whole of the blood came from the nasal or pharyngo-nasal cavities. He thinks that his lungs have been weak since he was 18 years old. Much of the time, during his whole life, he had had a dry throat in the mornings, and frequently had a severe cough immediately after breakfast.

His physical ailments did not cause him very great anxiety, what he feared most was his mental trouble, he says:

"Two years ago, last November, I was not feeling all-right, but did not know what was the matter with me. One night I found myself about one half a mile from my house, I was bare-headed, only had my stockings on my feet, but without my coat, that is, was in my shirt-sleeves. When I came to myself I could not, for a while, tell where I was. I laid down behind a log and recollect looking at a neighbor's window. I thought I heard them talking about me all the time I laid there, but still it was in so indistinct a tone that I could not quite get their words, I had these noises several times before, but when I can't say, I was not feeling well for some days before this, and was restless, could not sleep. I was not sick enough to be in bed at that time, but after I was out that night I froze my heels. This kept me in bed for about two weeks. The doctors said to my family that I was crazy, but it was only this noise in my head. Because I was troubled in mind, because of some wood-chopping, I felt better when I went walking in my fields. I walked because I was not satisfied and felt as if I must walk so as to be moving."

It took fully two hours to get the above history from him. At the time I had five physicians taking private lectures from me, and



their presence while giving this statement had the effect of confusing him. After I had treated him about two weeks, he voluntarily gave me the following additional history:

"When I was speaking to you two weeks ago, I was nearly crazy your questions confused me."

Fearing that I had not written his history correctly, I read it to him. I was greatly astonished to hear him say that he had not told me what I had written, but that it was all true, he thought that I had received my information from some one acquainted with his case. He then said:

"I had another one of these spells either before or after that one, I do not know which. This time I got up out of bed and wandered through the woods in my stocking-feet. It had snowed about an inch deep before I went out and they saw my tracks in the woods. That time I broke the small limbs of every bush I came across. I heard the voices at that time. I laid down in the snow for a long time and remember that I was so cold I trembled, and could not sit on a log, so I laid on the ground. This time my son tracked me around the woods and found me a quarter of a mile from my home."

As might be expected, he remained under treatment but a short time. I have made several efforts to learn what become of him, but have not yet succeeded.

There are other important facts that I learned before he left me, namely: "When my stomach feels as if I had a red hot ball in it, the noise in my head is gone, and when I have the noise, then my stomach is all right."

These metastatic symptoms of rhinitis are not at all uncommon, in fact they are to be observed in almost every case.

**1722. Irritability of Disposition.** See topic 1454 (c). The examination by the pharyngeal mirror disclosed a dry, glazed condition of the posterior nasal and pharyngo-nasal cavities, the pharynx and larynx. Numerous blood vessels were visible, large and tortuous. Examination of his lungs detected bronchial rales. Urine scanty, with a brick dust deposit in the vessel.

He received daily applications of vaseline and pinus comp. for two weeks, then every other day for three weeks, then once a week for ten days until the following April, making seven months in all. He also took constitutional treatment, and had the application of a constant current—the anode—to the spine, the cathode to the lower end of the sternum. He also received fall and spring treatment up to October, 1878. His recovery was complete, as far as his urgent symptoms were concerned. He will require further treatment, but like seven-



tenths of patients of this grade, are satisfied with the decrease of their annoying symptom.

**1723 Mind Complication.** Mr. ———, *et.* 78 years. "Wonderfully mixed up in my own ideas, easy to forget what I want to say; sometimes before I get through with my question, I forget what I expected to learn from its answer. Sleep well when I go into a cold bed-room, but it causes me to cough. Fever every day from 8 o'clock in the morning to 4 in the afternoon. During the fever I could not write even a line in a letter or make out a bill."

**1724. Another Case.** Mr. L., *et.* 58 years. "Inability to keep the mind fixed on any one thing for any length of time, or to remember for even a short time, anything read, only a general idea remaining. Thinking momentarily of everything. Mind always busy, but mostly with fancies; very fanciful."

I treated the above two cases in the fall of 1877. The appearance of the throat, pharyngo nasal and nasal cavities resembled each other very much. In both cases the vessels were not very large or numerous, but with Mr. L. they were as numerous as in the older case, but in the older patient the vessels were more tortuous and irregular in caliber.

They each received about the same treatment, and were each relieved of their prominent symptoms early in the course of treatment. Mr. L. is still under treatment, that is fall and spring. The other patient left the city.

**1725. Chronic Rhinitis and its Sequences.** Mr. I. J. S—, *et.* 42 years, consulted me June the 8th, 1885, desiring treatment for *severe headache, sleeplessness, indigestion, etc., etc.* The following is his own history of his case:

"During the winter of 1856-57, being then fifteen years of age, I was very much exposed for want of sufficient clothing, and the winter being very severe, I suffered much from the cold. Up to this time I had never worn underclothing of any kind. About January I went to Springfield, Ill, and before spring, I became aware of a very offensive odor arising from the nasal secretions. From that day until the present I have never been entirely free from this offensive odor, though sometimes it has been much worse than at others. After staying in Springfield about one year, I came to live on a farm in St. Louis county, where I remained about seven years, or until I was about 23 years of age. When about 18 years old, I was troubled with sores on my nose both external and internal; these were finally healed by a salve, in which I believe calomel to have been the principal remedial agent. For several years about this time the whole posterior nose seemed to be sore, and to throw off the crust or scab in lumps, some-



times two inches long, and as large as my little finger. Aside from this symptom I suffered no inconvenience, save that about the age of eighteen, there was a short time when from some derangement of the throat and vocal apparatus, my voice would sometimes fail, and for a few moments I could speak only in whispers. About the age of 23 I consulted Dr. M. He, with great gravity, informed me that the danger was, that the disease would descend to the chest. He gave me about six ounces of fluid extract of rhubarb, with no important results. When 23, I went to New York, and from there to San Francisco by sea, crossing the Isthmus of Panama. I remained in California about two years, being considerably exposed, but suffered no serious inconvenience, save on one occasion, when I had (at an elevation of 7,000 feet) a slight attack of congestion of the lungs. After having had my feet wet all day, and every day during the whole winter. I went to San Francisco on the 15th of Feb., dressed up in good comfortable clothing, and took a very bad cold which, with the constipation which usually attends a sea voyage, gave me quite a troublesome case of bronchitis by the time I reached New York.

I came West and did nothing until about May first, when Dr. P. relieved me by using cod liver oil and counter-irritation. Ever since that time, which was seventeen years ago, I have almost invariably had bronchitis more or less severely whenever I have taken cold. Dr. B. frequently relieved me when the cold was fresh, by half-teaspoonful doses of a solution, which I suppose contained morphine. Dr. J. S. M., sometimes relieved me with an emulsion of turpentine, sometimes with, sometimes without laudanum in it. By this time it was bronchitis and not catarrh that was troublesome.

About 1870, I consulted Dr. J. for the catarrh, and he gave me a prescription in which myrrh seemed to be the principal ingredient and I was to snuff that up my nose. He also proposed to twist off a piece of the turbinated bone, whereupon I adjourned the meeting and ~~die~~. About this time, or soon after, I tried Dr. J. S. M. again on this particular point. He prescribed a solution of chloride of lime to be snuffed up the nose. This burned like blazes, and I throw it away. It was to be a decongestant only. By this time I had settled down to the conviction which I still hold, that none of the M. D.'s, whom I had consulted, knew any more about curing the disease (at that time) than I did myself. I had also concluded, that in the then condition of medical science the disease was incurable, and I let it alone for a while.

But about the year 1874 or 1875 I concluded to try again, and the time I went to Dr. J. H. H., a physician for whom I then had and still have considerable respect. He blew carbolic acid (strength unknown) into my nostrils and said he could cure me, that if the disease did not



yield to one cautery it would to another. Right here I want to mention that up to this time the right nostril only had been affected, save that the size of the turbinated bone was increased in the left nostril. The offensive discharges seemed to come from the right nostril only, and the sense of smell seemed to be stronger in the left nostril. But when this treatment had progressed a while both nostrils became equally affected, and have ever since remained equally affected. He had me get an atomizing tube and use carbolic acid which did me harm, as I think because his medicine was too strong. He also had me get Thudichum's nasal douche which I used with blood-warm salt-water for some time but aside from the cleansing of the nostrils by the use of the douche I don't think I was benefited. I soon quit the cautery because I felt sure it hurt me. I have used the douche occasionally ever since. Before I went to California I hauled a great deal of timothy hay to market and almost invariably caught cold when I unloaded my wagon. The smell of timothy has always brought on trouble in the head more or less severe according to exposure. I have always been subject to headaches, since I have been grown, especially when I lost sleep or did not get my meals regularly, and for ten years I have been much troubled with dyspepsia. For several years I have had a cough commencing in the fall and leaving me in the spring—this last spring it did not leave me. For six or seven years I have noticed a growing inability to stand work, and a shortness of breath, and weakness after a very little violent exercise. About three years ago the idea got into my head that I had asthma, whenever I made any considerable exertion of strength it set me to coughing and this lasted until the irritation produced a free flow of the secretions which relieve me. At times I have coughed almost all night, at other times nearly all day as well as all night. Sometimes when we have had warm windy weather in spring I have found it impossible to keep from taking cold and have sometimes kept on taking cold for two or three days in spite of all that I could do. My throat has been almost continually raw and tender hurting me when I sang and when I have talked much, I have become hoarse. For fifteen years my chief occupation has been teaching. During all this time the disease has been settling, so to speak, down my throat, and as the bronchitis has become worse the catarrh in the nose has troubled me less, and at times I have seemed to be almost free of it. When I speak of having asthma; I mean that there seemed to be a spasmodic contraction of the air passages in the lungs, so that I have had to pull for my breath. Even laughing heartily would bring on the coughing fit in a few moments. When I exerted myself and brought on the asthmatic symptoms, if I kept quiet for a while they seldom lasted more than one hour. My



greatest weight at any time in my life was 127 pounds; for many years it was 117 or 118 pounds; lately it has been 111 or 112 pounds; at present it is 116 pounds.

Since June 8th when you began to treat me I have not had a severe headache, and a slight one only a few times. My appetite has been more regular, my digestion better and my sleep more refreshing. The only troubles which I now have are a slight sore in the posterior nares and the remains of my cough.

Perhaps I ought to mention as one of the consequences of my ailment that from being considerable of a student I have no longer the ability to bring my mind to bear on any subject requiring profound thought, and my physical energy is almost entirely destroyed, or to be plain, I am lazy, and I don't think I was born so.

**Treatment.** There was nothing unusual required in his treatment. The inflammation of the mucous membrane began to decrease with the first application. He received thirty five treatments during the months of June, July and a part of August. He should have had fall and spring treatment for six or seven years, as I told him on his first visit to me, but he was so much improved by the first course that he has neglected to continue the treatment, and the consequence will be that the original severity of the catarrhal inflammation will soon return, if it has not done so already.

**1726. Chronic Rhinitis.** Mr. S., *et.* 44 years. April 15, 1886  
The following is his history of his case:

"I first had headaches when I was 25 years old. I had been in the army and exposed a great deal. My headache would be on one side and near the temple, and I noticed that the nostril on that side would be closed up and I could not breath through it. During the headache I would have considerable pain in the back of my neck, head and shoulder and the dull pain back of my temple would be relieved by dropping my head back. As I did for these headaches, which occurred once a week, was to apply mustard plasters. I would have it on Monday for several weeks, then on Tuesday for several weeks, and so on every day of the week. The weather, whether warm or cold, seemed to make no difference. I have been making my headaches a study for some years, and do not think they come from cold taken just before. If I had headache on the left side of my head, my left nostril would be very full, and sneezing would seem to relieve it. Neither my eyes or ears were affected, and my general health was good; slept well and my digestion was good, although I have been troubled with a gastric sensation, a kind of wind on the stomach, during the headache, or about the time it would come on. This did not affect the headache at all.



I am a carpenter by trade, superintendent of car works. When I have the headaches I cannot do much mental work and I think my memory is not as good as formerly; for instance, I start off at one end of the works and before I get to the other end, I have to think and study to know what I wanted. This of late years has bothered me a great deal, and I have been to a great many physicians. One physician promised to cure me, but gave it up, saying, "you are a mystery to me." One doctor treated me, off and on, for four years, but did not do anything but give me morphine.

Since the commencement of your treatment my headaches have been very slight. I have only taken morphine but once, and that about ten days after my first treatment. There has been marked relief since treatment. Before treatment I used to have to go to bed and send for a physician."

**Objective Symptoms.** The left side of his throat was much swollen and there was quite an indentation in the vault of the pharyngo-nasal cavity; this depression was where the secretion lodged. The secretion was dried by the inspiration through the nostrils. The crusts caused him a great deal of uneasiness, and to get rid of them he would draw his breath through his nostrils with his soft palate against the posterior wall of the pharynx, and then hawk it up from the larynx. These crusts, which were offensive, had been forming for years and would come away about once a week and in less than a day he could feel them forming again.

The mucus membrane of the septum and of the middle and inferior turbinated processes were edematous. The whole of the mucous membrane was greatly congested although there were not many large blood vessels. His uvula was uncommonly large, but not very long. Inferior turbinated process enlarged and congested on both sides but more so the left than the right.

**Treatment.** This did not differ in the least from that given to usual cases. He received daily treatment for eleven days, then was treated every other day for about three weeks and twice a week for the same length of time. He will require fall and spring treatment for from five to seven years.

**1727. Acute Pharyngitis.** Reported by Dr. Hiram Christopher, of St. Joseph, Mo.

Mr. H., aged 37, of a robust constitution and generally enjoying good health, applied for treatment because of a sore throat, for which a practitioner had been using gargles, and only weekly inspected the throat.

On examination the membrane was observed to be as red as a beet, but of an even and smooth surface. There was no ulcerating patches and no muco-purulent matter on the faucial membrane. There



was a little on the dorsum of the velum. The inflammation embraced the whole faucal surface and extended into the posterior nares. The gargling had had no beneficial effect on the condition of the membrane. The pulse was full, strong and somewhat incompressible; the complexion dusky, and tongue furred. His appetite was fair, and he complained of nothing but his throat. There was some pain arising from the inflammatory condition of the membrane and on deglutition. He attended to his business as usual, and slept as well as usual. He was simply bilious and had contracted a cold which seemed to expend its violence on the pharyngeal membrane.

**The Treatment** began on the 6th of December, 1886 and continued two weeks, when he was dismissed well. The treatment consisted of the administration of a grain calomel pill every night and spraying with Nos. 1 and 4. The improvement kept pace with the return of the pulse to its normal state. As the pulse was one and the chief indication of the condition of the system, it became normal when the system returned to its normal condition. This is the uniform result in all such cases. The patient did not use tobacco in any form, nor intoxicants; so there was nothing of this kind to retard his recovery. The use of the spray gave relief from what pain came of the inflamed membrane. Alone it would have effected a cure in a longer time. Indeed the mercurial treatment alone will relieve such cases almost as soon as when accompanied by spraying.

**1728. Chronic Rhinitis with Pruritic Catarrh.** Mr. J. C., a merchant of this city, wt. 49 years, consulted me for symptoms of hay-fever in June, 1877. He had these sneezing spells for three years, each year the attack becoming more severe. He had all the symptoms of hay-fever in a not very aggravated form, but sufficiently severe to prevent him from attending to his business for the remainder of the day after the attack came on.

Examination showed excessive tumefaction of the nasal and pharyngo-nasal cavities; his vocal cords also very red.

One half drachm of vaseline and two drops of the pinus canad. comp. were made quite hot and applied by the spray producers Nos. 4 and 5. For some time I applied vaseline alone with the No. 2, but I soon had to discontinue its use on account of the liability to invite an attack of sneezing.

He was relieved on the first application. These applications were made daily for three weeks, then every other day for two weeks. The next spring, in April, he commenced receiving applications again, as he felt the return of the complaint. These were given, one every other day for about two months. Again the next spring in April, he



commenced treatment as he felt the complaint returning. Seven, given every other day, drove away the symptoms. He was treated in the spring of 1879, also; but not since, as he has remained well. Of course, he received constitutional treatment during the whole time the local treatments were made.

**1729. Another Case.** Mr. —, *et.* 32 years consulted me, Oct. 22d, 1878. He complained of hoarseness and sore throat; had been a victim of asthma for five years. The attacks came on after a cold had been taken, consequently does not have them regularly, sometimes one in a week, sometimes three to five. Yesterday he had two slight attack, having taken cold a few days ago. He has suffered from severe colds since he was a boy.

Examination of his fauces, pharyngo-nasal and nasal cavities showed excessive and long standing inflammation. No tumors of any kind were seen.

All of his catarrhal symptoms improved after the beginning of local and constitutional treatment. He had chewed and smoked tobacco since his boyhood, this indulgence was abruptly discontinued. He was directed to observe every Hygienic rule that would conduce to health.

He was under treatment about four months, since which time he has taken from six to ten treatments each fall and spring, with an occasional treatment between seasons, when he took cold. In the spring of 1880 he had two slight attacks of difficult breathing; but since then he has had no symptoms of asthma and but slight symptoms of nasal catarrh.

**1730. Another Case** was that of a lady *et.* 24 years. She had a stoppage of her left nostril for about two years. In Feb. 1881 she consulted me in reference to it. On being informed of the presence of a gelatinous growth in this nostril, and of the necessity of its removal by forceps, she immediately consented and made an appointment for the next day, but failed to return until Jan. 13th, 1882. During this interval the growth had fallen on the soft palate and extended across it, so as to occlude the right post nasal opening also. The position of the tumor prevented her from expiring through either nostril, yet she could inspire through the right one. During the latter half of Nov. and all of Dec. 1881, she could not breathe while in a recumbent position. She had to elevate her head with four or five pillows to raise her sufficiently high to inspire during sleep. During the last two weeks she had been compelled to sleep in a rocking chair, the recumbent position and the heat of the bed clothes completely checking respiration, she said "I know if I was held down on the bed I would die in a few minutes."



The removal of the tumor relieved her of all these symptoms. I continued to treat her with the spray producers, with a view of allaying the chronic catarrhal inflammation of the nasal cavities, with which she says she had suffered every since she can remember.

**1731. Asthma and Pruritic Rhinitis.** Mr. —, a merchant of this city, æt. about 38 years. He consulted me in June, 1876, on account of a severe cold in the head. He had been a victim of hay-fever four years. Each year the complaint manifested itself on the 20th of August.

Examination by the pharyngeal mirror revealed nothing except chronic inflammation.

I gave him ten or twelve applications by the spray producers Nos. 3, 4, 5 and 2. The last application started him to sneezing, which he feared was the beginning of an attack of hay-fever, but it did not prove to be so. He was relieved of the cold in the head, but received no further applications, preferring to make a visit to the West for relief and relaxation from business.

**1732. Another Case.** Mr. —, æt. 46 years, a carpet merchant of this city, visited me professionally June 28th, 1877, desiring treatment for nasal catarrh. His symptoms were those of hay-fever and asthma combined, he had asthmatic symptoms in both nose and lungs. A few days before his visit to me, he passed a store, on one of our thoroughfares, that had a cellar window open and from which emanated a musty smell. This smell almost struck him down, not because of its disagreeable odor but because it instantly brought on a suffocating feeling, and shortness of breath. He could not walk the length of the house on the pavement, but immediately crossed to the other side of the street. His breathing was so oppressive that he could not attend to business of any kind that day. He had noticed that a musty smell had at previous times had the effect of shortening his breath.

This patient had no tumors of any kind in his nasal passages.

Therapeutic, local and constitutional and hygienic measures relieved him of all symptoms. He is still under my care and visits me as necessity requires, generally a few times fall and spring, although this last fall he has required no treatment further, than taking quinine, at my suggestion and prescription, when he had contracted a cold.

**1733. Sleeplessness.** A widow lady, æt. 52 years, complaining of sleeplessness and pain in her left arm, and the left side of her head, consulted me April 28th, 1876.

Her bowels very constipated, not having an action oftener than once in eight to eleven days; appetite poor, otherwise appearing in



excellent health. The pain in the left side of the head was severe, when the pain in the arm had subsided, and *vice versa*. When her head pained her it seemed as though the whole head was "possessed by a multitude of noises," which kept her from sleeping. She could not lie on her left side, because of her heart beating so hard as to cause pain in the left lung. Her throat had been dry every morning since childhood. Until lately, it had been remarkably easy for her to take cold in her head.

Examination revealed enlarged tonsils and uvula, follicular pharyngitis, long standing pharyngo-rhinitis; beside she was addicted to the use of tobacco and opium.

Twenty-eight treatments relieved her entirely of all her prominent symptoms; but the opium habit remained with her. She has received fall and spring treatments as regularly as the seasons arrive, which keep her in excellent health.

**1734. Sleeplessness.** Mr. H., a lawyer, *æt.* 42 years, consulted me on April 5th, 1875, for sleeplessness and a fulness in the head, but the latter, he considered, was not of much consequence, as he had been so afflicted since boyhood. Bowels constipated, appetite moderate; felt weary physically and mentally, which caused him to have despondent thoughts concerning his business, although in affluent circumstances. He had tried the effects of two or three drinks of whisky, but this drove him almost crazy; he felt compelled to kill somebody or himself.

The pharyngeal mirror revealed a complete net-work of blood vessels enlarged to the size of horse hairs, these extended down the pharynx, over the tonsils, the velum, the epiglottis, also up into the nasal passages, and out the anterior nares, which gave his nose a slight, reddish appearance.

He received forty-eight treatments in all; the first eight were given daily, the next twenty-two every other day, the remainder, when he felt that he ought to be treated. He received two treatments the next fall, and four in the fall of 1878. Like the large majority of my patients, he does not come for the fall and spring treatments, unless he feels some of the old symptoms return.

**1735. Chronic Rhinitis, with Perichondritis of the Larynx.** Mr. Andrew D., *æt.* 62 years, of Ill., consulted me Jan. 2nd, 1873, at the request of Dr. Louis Elsberg. His most urgent ailment was a perichondritis of the larynx. Upon a thorough investigation of his previous history I learned that while a boy he was frequently very hoarse, from severe colds in the head. When young, he led a very exposed life in the north eastern part of Scotland, which was his native country. His attacks of sore throat frequently lasted



for weeks at a time; but for many years,—certainly in the last twenty-five years—he has not suffered in any respect, except now and then with colds in the head.

In October, 1872, he visited New York, and was under the professional care of Dr. Elsberg, for about two months. During this time Dr. Elsberg operated upon his larynx ten or twelve times.

At the time of his visit to me he had great difficulty in breathing, his respiration being but twelve per minute. The exertion in getting his breath was so great, that the intercostal spaces were markedly drawn upon inspiration. He was compelled to walk very slowly, otherwise he could not get sufficient air in his lungs. For fear that he might not be able to cross the street by his own exertions, he had a nurse with him constantly.

Upon examination of the larynx, I found the left arytenoid process was very much enlarged, and formed a large tumor; it extended fully a quarter of an inch beyond the middle line, and encroached upon the space that should be occupied by the right arytenoid process. Of course the left arytenoid process was immovable; there was but slight motion to the right arytenoid process.

The breathing space between this tumor—which occupied the whole left side of the larynx, and extended a quarter of an inch beyond the middle line—and the right vocal cord was, apparently, about one-sixteenth of an inch in width, and about half an inch in length.

The pharynx and pharyngo-nasal cavity, as well as the posterior nares, was in a more congested condition than I had witnessed in any case in my life. The blood-vessels were all as large as a knitting needle, were irregular and tortuous. The whole surface had a dark blue color. Strange as it may appear, he did not experience the least sensation of uneasiness in these parts.

**The Treatment** consisted in the application of a weak solution of muriate of ammonia, to which I added two drops of the tincture of aconite root. The spray was made quite hot. The warm application produced a pleasant effect. In about an hour after this application I applied a small quantity of eucalypti with the spray producer.

He was treated two times on the 3d. On the 4th and 5th he received three treatments each day. The effect was to greatly diminish the difficulty in breathing.

Jan. 6. I told him that I thought that his throat could not recover while he was using it in respiration, and that the best way to save these parts from further irritation was to insert a tube in the trachea just below the larynx. After receiving the treatment in the early part of



the day, he concluded to go to his residence in Ill., and there submit to the operation of tracheotomy.

Jan. 7. Upon exposing his neck to perform tracheotomy, I found quite a large surface of cicatricial tissue situated directly over the larynx, and was then informed that the late Dr. J. T. Hodgen had opened a large abscess in this region about one year previous. This abscess did not cease to throw off a yellowish fetid puss until September last. Immediately after this his throat began to become painful and his voice to be altered in tone. Soon after this he visited Dr. Elsberg in New York.

Upon making the first cut through skin the blood flowed so freely that it delayed the operation very much. It was fully one hour before I could open the trachea to put in the tube, so freely did every blood vessel bleed. As the patient had plenty of breathing room, I took my time and did not open the trachea until all hemorrhage had completely ceased. While this delay was very tiresome to the patient, yet it insured an easy time after the introduction of the tracheal tube. He went to sleep within twenty minutes after lying down in bed. After the completion of the operation he passed into the hands of his family physician, who had a very trying time for two or three weeks, but finally succeeded in getting him strong enough to leave his bed. He had impaction of the rectum, irritation of the stomach and a general letting down of the system.

Immediately after the insertion of the tube the air space through the larynx closed up completely. I have noticed such closures on several occasions. It appears as though the exertion of respiration prevents complete closure of the glottis.

On February 14 he visited me again, accompanied by his faithful nurse. This nurse was a man that knew intuitively, apparently, every want of his patient.

Mr. D. looked remarkably well, had a good appetite, slept well, and his whole system seemed to have reacted in a remarkable degree, which reflected great credit on his family physician. When I left him on the morning of January 8, I feared that he would not leave his house again. He experienced a little trouble in deglutition, but this symptom was not feared by anyone.

I treated his throat, pharyngo-nasal and nasal cavities once and twice daily until February 25, at which time he went home.

By closing the tracheal tube with his finger—after filling his lungs with air—he could produce a very fair tone of voice, and he thought sufficient air could pass through the glottis to carry on respiration, but I was doubtful of this.

March 26. I gave him another treatment, and learned that he



had been using a steam spray producer, and thought it was doing him much good. I stated to him that I was sure it would be harmful.

Aug. 16. He visited me again, complaining of great difficulty in swallowing his food, some of nearly all liquids passing into the trachea. It was evident that there was a paresis of the inferior and middle constrictor muscles, as well as those of the pharynx generally. The opening in the trachea was much larger than the trachea tube, and there was numerous evidences that there was a perichondritis of the larynx and trachea also.

At this visit I learned that he endeavored on several occasions, to take the tracheal tube out, but experienced a dread as well as a sensation of suffocation. There was no question that the presence of the tube in the trachea was a great source of irritation, but the growth within the larynx, involving the left arytenoid process was the disease that ultimately caused his death, which occurred in the following winter.

**1736. The Gradual Removal of a Tracheal Tube.** It has occurred a few times in my practice that upon the removal of the tracheal tube, the patient experienced a suffocative sensation, and, in consequence would not allow the tube to be taken from the trachea. Several devices have been suggested to overcome this condition, but none that I have seen are nearly as effective as that invented by Dr. H. F. Hendrix, of this city, shown in figure 149. The following is Hendrix's description of his tube:



Figure 149. Dr. Hendrix' Tracheal Tube.

"This tube is of ordinary tracheotomy shape, with short external tube intended to reach only through the tissue down to the trachea, but not into it, through this the long tube with the long fenestra is made to slide, and is held by a friction clamp, confirmed by a screw in such a way that the long tube may be withdrawn and as the screw



tightens the clamp onto the tube, it may be retained at any depth required.

"This tube is not intended as a substitute for the ordinary one at the time of operation, but there is a class of cases where the trachea becomes hypersæsthetic after tracheotomy, and if the air is permitted to pass over so large a surface as is made tender by the presence of the tube, the patient experiences suffocative symptoms, to relieve which the tube must be quickly returned, such patients, I have known to go through life wearing a tube in the trachea. After all the symptoms for which the operation was made have passed away, such a case in my practice led to the invention of this tube, after the failure of many other methods.

"In this case the tube was removed, exposing but a small portion of the tracheal membrane each day until on the seventh day, the long tube was entirely withdrawn leaving the trachea free, with the short tube not reaching into it, the short tube is allowed to remain for the moral effect, the patients are quieted by the belief that they are still protected by the presence of the tube in the trachea, after it has in fact been removed. In the case referred to above, the child (4 years old) awoke at night after the long tube had been removed, carried his finger quickly to his throat finding the tube there laid down quietly to sleep. The use of this tube in any case, when it is desired to clear the trachea permanently, will obviate the necessity of having a skilled attendant to remain with the patient for hours at such time."

**1737. Chronic Rhinitis, with Cough, Occasioned by Ear Disease.** Mr. B. a merchant from Mississippi, æt. 48 years, consulted me in April, 1876, for recurring deafness. He had been liable to take cold since his boyhood, and had had running from his left ear ever since he could remember. During the last three months he had been troubled with a cough, which caused him to fear his lungs were affected. He had noticed that after syringing his ear with slightly cold water, his cough was of a more severe character, and was so suddenly made worse, that he imagined the water run into his throat, and down into the larynx. He sometimes lost his voice entirely for one or two minutes at a time, at such times he felt compelled to clear his throat by "hemming" continuously for ten or fifteen minutes, to prevent choking. He also noticed if he pulled his ear, as he sometimes did to allay an itching sensation in it, that he felt the same choking sensation, and experienced the same loss of voice.

His health had been poor for several months past, and he had lost flesh quite rapidly. His appetite was poor, bowels constipated, his kidneys did not perform their functions properly, as his urine was very thick and white; sometimes a red sediment was left in the vessel after



the urine was thrown out. He had pain in the back, in the lungs, and also in the left arm, but this he thought was caused by lying on it in bed. As his little finger and the one next it had a sleepy, numb feeling in them most of the time, I think he was mistaken as to the cause of the sensation.

The examination by means of the pharyngeal mirror, revealed an excessive inflammation of the pharyngo-nasal cavity, pharynx and larynx: both nasal cavities showed the same condition, even the skin on the nose was reddened by the large number of enlarged blood vessels in it.

Constitutional treatment was prescribed, consisting of a tonic, laxative and a diuretic. I also advised the use of cod liver oil. The local treatment consisted of the application of vaseline one-half drachm and two drops of *pinus canad. comp.* by means of the spray producers Nos. 3, 4 and 5, and vaseline alone by No. 2. This was repeated every day for three days, then every other day for three weeks, and twice a week for three weeks. He was instructed how to keep his ear clean. The air douche was given at each visit. At the end of this course his cough and all of his prominent symptoms had subsided. He had gained nearly fifteen pounds and felt better in every respect.

**1738. Rupture of the Membrana Tympani.** Mrs. E. D. wt. 42 years, consulted me May 30th, 1876, complaining of a deafness in her left ear, following a smarting sensation that was produced by very forcibly hawking in the endeavor to clear her throat of tenacious secretion. This occurring the morning before she visited me. She says, "yesterday morning I had great trouble in clearing my throat, and after several ineffectual efforts, I made a very strong cough with my mouth closed. This produced a loud snap in the left ear, followed by a sharp ringing noise that slowly died away. My ear felt numb and painful when I pressed it, which I did to relieve the deafness that came on immediately after the loud noise in my ear."

Upon examination it was plainly seen that she had ruptured the drum membrane. The rupture was located in the upper quadrant, and midway between the lower attachment of the manubrium and the upper border of the drum membrane. Upon causing her to close her nostrils and force air up the Eustachian tubes, a slightly whistling or hissing sound was perceived coming from the left ear. This procedure occasioned a slight increase of the numbness of the ear. Upon the application of the tuning fork to the front teeth, and a closure of the mentus by pressure on the tragus, it was observed that the sound was not increased. This experiment was made several times, and each time produced the same results, see topic 501.

Nothing was done except the application of a small quantity of



the solution of atropine to the membrana tympani, 2 grains to the ounce.

I had her visit me every other day, more for the observation of the effect of the tuning fork upon the ear than for treatment. On June 8, the tuning fork indicated that the rupture had closed, as the closure of the auditory meatus increased the sound of the tuning fork to the same degree of intensity as that on the right side. I had informed the patient that this would be the case upon her recovery, and when the tone was increased in intensity, she said: "Oh, now it is higher." I made very careful inspection of the ear and saw that the perforation was entirely closed. She visited me a few time afterwards, on which occasions the tuning fork was employed, and inspection was made showing that the rupture had healed.

This is the only case of the kind that I have seen. I had heard of similar cases, but had always doubted that a person could use sufficient force of air from the lungs to rupture this membrane, especially as it had to pass through so small a passage as the otosalphinx, or more properly the ear-air-canal.

**1739. Eye Complications.** Mr. E., of Springfield, Ill., says that reading always causes the pain in the back of his head and neck to increase, and if he persisted in reading believes his mind would be affected. Mr. E., was 78 years old when he visited me on April 8d, 1876. He complained most of the pain in the head and nasal passages, and of excessive noise in his ear.

The catarrhal inflammation was treated as indicated on pages 451 and 452, the tinnitus was treated by electricity.

The pain and fullness in the head were relieved at once, the tinnitus mitigated a little. This is all that can be expected in patients of this age. He received treatments for about three weeks.



## SECTION II.

**Remarks of a Miscellaneous Character. Re-  
ferences to Different Methods and  
Remedies, etc.**

The three Chapters in this Section will be devoted to matters of minor importance, but they may prove somewhat interesting even if they contain no instruction.



## CHAPTER V.

### REPORTS ON THE EFFECTS OF VARIOUS AGENTS EMPLOYED IN THE TREATMENT OF CHRONIC RHINAL INFLAM- MATION FROM SEPTEMBER 1855 TO OCTOBER 1865.

The only benefit to be derived from reading this chapter, will be the information that I have used certain agents in the treatment of rhinal disease, and that they were found to be either injurious, or did not give satisfaction. It is sometimes as advantageous to know that certain agents are *not* servicable as it is to know *what* agents are useful.

It is a characteristic of those who have not received a hurt to be fearless in almost any project, and this is especially true of young medical practitioners. It would, therefore, not be an unusual undertaking, if such a physician were to treat a certain disease, even if it were seldom mentioned in medical books; but it would be very unusual if he did continue, for years, the study of this disease after he had made numerous attempts at its cure and had ignominiously failed.

Persistency to this extent might be accounted for by stating that there had been a peculiar course of study, which produced a taste for such practice, and the fact that the difficulty to be overcome always appeared just within reach, and, in addition to these, that there were peculiar



influences urging it pursuit, as well as incentives inviting the continuance of this subject, notwithstanding discouraging circumstances.

Such were the circumstances and such my experience when I began the practice of medicine in 1855. That the course of my early medical studies was peculiar; that the incentives were uncommon and the concurrent incidents of no ordinary character may be seen by those who care to read my **INTRODUCTORY REMARKS OF A PERSONAL NATURE** given on pages 26 to 32.

**My first Catarrhal Patient**, mentioned in the **REMARKS**, page 28, was a girl of 12 years of age. She had dark hair, and seemed to be in excellent health in every respect except her nasal trouble. This had afflicted her since she was 8 years of age. She had no cough; her appetite was good, and she rested well at night. She had no evidence of disease except an excessive discharge from her nasal passages. She had a large crust of greenish, offensive secretion come from each nostril every day. A peculiarity of the shedding of these incrustations was that "she went through a wild, passionate tantrum," while she was blowing them out; going from room to room of the house repeating in a very loud voice: "Oh, dear, Oh, my," stamping her foot on the floor at each effort at blowing her nose.

I had no instrument to use as a speculum, so I placed the patient in the sun-light, held her head backward and pushed the point of her nose upward, thus allowing the sun-light to fall into her nasal cavities. This inspection resulted in seeing that every portion of the mucous membrane in sight was covered by inspissated mucus.

After I cleansed the nasal membrane with warm water applied by a syringe, the anterior extremity of the inferior turbinated processes were seen to be much enlarged and quite tumified. These were shown to her aunt and called "tumors." A strong solution of nitrate of silver was applied to each of these enlargements at once. This was done the 12th of September, 1855.



The next day the patient could not disengage the incrustations; so great was the swelling from the nitrate of silver. This greatly increased the disagreeable sensation caused by the presence of the secretion. The employment of the syringe and warm water brought the desired relief. The result of the first day's treatment was not encouraging, to say the least.

I made no other attempt to treat the nasal passages or this "tumor," save by warm water and the syringe, for about two weeks. At the end of this time, the effect of the nitrate of silver had passed off. I then used an aqueous solution of chlorate of potassa, about grs. x ad ʒ j; it was thrown up the nostrils with the syringe. This was continued one week, daily; then a solution of tannin, about grs. iij ad ʒ j; this was applied daily about a week and occasioned so much pain and dryness that the patient refused to submit to further treatment.

I had a written course that I intended to follow; it was to use a remedy for about one week and then change to another. This idea was one that I had heard my preceptor make, namely: "Almost anything is good for a nasal flux for one week, after that anything will be better than that which you are using." This proverb—as it was considered in 1855—founded upon very superficial observation, was for many years, very popular, and guided almost every practitioner in the treatment of this disease, but a practical test of it proved it to be a delusion and a snare.

After a conference, I continued to treat the case. The next application was warm sweet cream; this was applied with the same syringe. The effect was very soothing and it decreased the amount of nasal discharge to a marked degree. On the 20th of Oct. a ten grain solution of nitrate of silver was applied with a camel's hair brush, to the localities upon which the crusts had formed. As this produced great pain, I promised to employ only half the strength the next time, and did so.



I injected the nostrils with warm buttermilk but one time, it produced great pain. I did not think that the production of pain was harmful but my patient "had her way" which I could not control.

It was noticed that if the cream was not all blown out of the nose, a slightly disagreeable odor was appreciable.

One of my medical journals recommended the fumes of muriate of ammonia. The salt was to be placed in an iron tablespoon and held over an alcohol lamp and as the fumes arose from the spoon the patient was to place the nostrils near it and inhale by deep and long inspirations through the nose. To get the fumes in greater quantities, I made two paper funnels, one for each nostril. Through these she inhaled the vapor with ten deep slow inspirations. The effect was not the least unpleasant. This, with the sweet cream injections, were employed until November 18th.

At this time I received a letter from a well-known physician in Louisville, Ky.; this letter was an answer to an inquiry concerning the best course to pursue in the treatment of a bad case of non-syphilitic nasal catarrh. I was advised to give the following: *R.* Calomel, grs. xxv Ipecac grs. xxx; to be mixed and divided into three powders. One of these was to be given each night, to be followed the next morning by two tablespoonfuls of castor oil. She was to take a teaspoonful of cod-liver oil after each meal. He advised that this course of three powders with the castor oil should be given about once a week or ten days, as the strength of the patient and the decrease of the catarrhal symptoms would indicate, and that the cod-liver oil should be continued for several months. He said that the whole cause of the excessive discharge was due to the liver being out of order, and until this important organ was acting normally the whole digestive tract—the nose included—would remain in an abnormal condition. His theories were well set forth. I was highly pleased with them, and felt certain that he was right.



On the 8th day of December my patient was badly salivated. Chlorate of potassa and an infusion of white oak bark was employed to relieve this condition. She recovered by the 20th, but the improvement of the nasal catarrh was not nearly as much as we had hoped; yet she did not have the tantrums so severely as before. At this date the colomel powders were given in five grains, instead of ten grain doses. Notwithstanding this she was salivated again in five days, and far more severely than on the former occasion. This sickness reduced her very much, and gave her countenance a blanched appearance, showing plainly that the calomel had made her quite anæmic.

I wrote to my friend in Louisville, as he kindly directed I should, informing him of the result of the treatment. He replied that he also had a few patients afflicted with nasal disease that had been difficult to relieve, but thought that by changing the length of the intervals of giving the calomel powders, the desired results would be reached. In addition to the cod-liver oil, he advised the use of two grains of salicene three times a day. This course, without the calomel, was pursued, in connection with the injections of sweet cream and the inhalation of the fumes of muriate of ammonia, until February 3d, 1856.

At this time I received another letter of advice from a prominent physician in Chicago, Ill. This physician thought "the patient was laboring under a scrofulous diathesis," and that great care would have to be exercised "to prevent the disease from affecting the lungs and stomach." It was from this letter that I learned the tendency of the disease to affect the lungs and stomach, and my subsequent observations proved, conclusively, that his views in these respects were correct.

He advised that a twenty grain solution of nitrate of silver be applied to the ulcers (?) in her nasal passages, about once or twice a week, and that cod-liver oil and iron by hydrogen be given three times a day.



His recommendations were followed. The silver solution caused so much pain that this was discontinued after two weeks application but the remainder of his prescription was followed for another week, when the injection of sweet cream and the inhalations of the muriate of ammonia were also given.

In the early part of April, I received another letter of advice, from a physician in Buffalo, N. Y. The reasons for writing to these prominent medical men were that I thought that the cure of the disease was not progressing satisfactorily, and that I should find some one who did know how to cure such a case. This physician said that he did not have a great many of such cases, but thought that it would be not be difficult to cure. He recommended the use of the syringe and warm water, after which calomel was to be blown into the nostrils. Twenty grains of calomel was to be rubbed together with twenty grains of calcined magnesia. Of this about one grain was to be thrown into each nostril after the use of the syringe. He also recommended cod-liver oil and tincture of red cinchona three times each day. This plan of treatment was followed for about two or three weeks, when the calomel powder was discontinued, also the injection of warm water; warm cream, and the fumes of ammonia were used. The calomel caused an excessive dryness of the nasal passages, which the patient would not endure.

In June I wrote to a physician in Philadelphia, asking his advice. He said that the disease must be due to inherited syphilis, and recommended the application of the black wash, after the cavities had been washed out by warm water or by cream, which I informed him I was using. The wash was to be applied by a cotton swab. After the application of the wash he recommended that about two grains of the equal parts of calomel and sugar of milk be thrown into each nasal cavity, but especially upon the "ulcers." This physician mentioned ulcers, because I had described them as such, I being informed by



my Chicago adviser that they were ulcers. The Philadelphia physician also recommended the use of the syrup of the iodide of iron, to be given one week and to be alternated with three grains of iodide of potassium. Cod liver oil was to be administered freely. This course was followed for about one month, when the cream and the fumes of ammonia were again resumed.

In September I received a letter from another physician regarding the treatment of my patient. In this letter, which came from New York city, I was advised to treat the case as for scrofula. Cod-liver oil was recommended and "a few applications of a saturated solution of nitrate of silver should be made once a week or so." This was to be made by a small probang armed with a small sponge. He said "the pain occasioned by the silver solution will be a little severe, but this will soon pass away." When the patient heard the directions read—as by this time I was compelled to let her know all that was proposed to be done—she said, "if it would only hurt a little I might stand it, but I know it will hurt terribly for a long time." The result was that this physician's prescription was not given a trial. The cream and ammonia were continued.

Under this treatment the crusts in her nostrils were much decreased in size and they were always easily removed. She had no tantrums while freeing her nostrils, and the intervals of blowing them were increased to two, and sometimes three days. It was because of this degree of relief that she, as well as myself, did not wish to again resume a method of treatment that had been proven to be an injury instead of a benefit. Notwithstanding this degree of improvement, her aunt desired me to correspond with other physicians concerning her case, hoping to be informed of certain medicines that would perform a cure quickly. I also was seeking for remedies that would cure such a case in a few weeks, at most. Even up to 1868 I thought that if ever I cured nasal catarrh, it would be



solely through the healing properties of one or more agents.

In February, 1857, I received a letter that purported to come from Dr. Horace Green, of New York city, but it was written by some one in his office, as I learned afterward. This letter did not contain any new information consequently its recommendations were not followed.

During the months of March, May and July I received others letters, one of which recommended the application of an ointment of oxide of zinc. This was to be applied by a small brush, and smeared over the surface of our so-called "ulcers." All of these letters recommended cod-liver oil, two of them maintained that the disease had a syphilitic origin, and one, a scrofulous origin. The oxyde of zinc ointment was tried, and the effect was not very unpleasant, but the patient greatly preferred the cream and the fumes of the muriate of ammonia.

I received a few letters from other physicians, but nothing new was given. The same story almost was repeated in every letter, with one notable exception, and this was in the last letter I received. This one was from Professor Stone of New Orleans, La. He advised the discontinuance of all medical interference, and looked upon the disease as incurable. This was in November, 1857. I advised this course, and recommended that the patient use her judgment as regards the use of the cream and the muriate of ammonia.

In the two years that I had this patient under my care I learned that the medical profession knew absolutely nothing in regard to the treatment of common catarrhal inflammation of the nasal passages. No one can say that they did not give me what they knew concerning the treatment of such a case, as every one of them were paid for their advice, with the exception of that received from Prof. Stone; he returned the five dollar bill that was sent him. I will say in passing that every one of them held prominent positions in renowned medical colleges.



During these two years my general practice became quite large and extensive, and, as I thought during the winter of 1855-56 that the information I received in the letters from these renowned physicians was certain to assist me in performing a quick cure, I informed those of my patients who complained of nasal trouble that I was now able to cure them. I was continually under the impression that the latest method was "just the thing." Because of these assurance, I had quite a number of these sufferers under medical advice, if not treatment.

The plan of treatment followed in the case given above was pursued, with some variations, on about five or six other patients in the first year of my practice. If I had been successful, I am sure that I would have had ten times that number, for, as the saying goes, I found "the woods were full of them;" but my numerous disappointments kept the number down, and I learned by March, 1856, to avoid speaking about the subject, even to my most intimate friends.

In 1858, I employed a weak solution of sulphate of zinc, about two grains to the ounce of warm water. This was injected into the nostrils by a small glass syringe. Sometimes I added five to ten grains of opium to this solution. After these applications I had the patient inhale the fumes of the muriate of ammonia. A piece of this salt was placed on a small plate of copper, which was held over an alcoholic lamp. As the fumes—a dense white smoke—arose, they were inhaled into the nostrils. Sometimes I had the patient use a small paper funnel, but most of the times they did not do so. In the fall of this year, I sometimes, put a small quantity of camphor in the nasal wash; the patients were pleased with the effects of this agent.

I found it useful to change the agents used, at least once a week, and sometimes two times a week.

My impression was, at the time, that my patients were pleased with this course for a few weeks, then they



discontinue their visits to my office. I recollect of having as high as three patients at a time under treatment, and almost always had one patient under my care. The effects of the application were always to decrease the amount of the nasal secretions and the number of the crusts. It should be borne in mind that every one of my patients had inspissated secretions in one or both nasal passages. I have always been under the impression that these patients discontinued their later visits to me because they always experienced pain, even after the mildest course of treatment; that is, the treatment of the first two to four weeks, so rendered the passages so sensitive that even my mildest remedies occasioned more pain than they experienced in the early part of the treatment. Still many were well pleased with my method, as was proven by the fact that they recommended their friends to come to me for treatment of the same complaint.

In the early part of 1859 I employed a salve of elder flowers (*sambucus canadensis*) and sheep tallow. The mass was made into a soft condition by the addition of a little ether. This was applied to the nostrils by a brush. The first effect was to smart the parts, and caused the patient to sneeze. I tried this on patients for a few weeks, and then discontinued it.

In the fall of this year I tried the effect of finely pulverized blood root (*sanguinaria canadensis*). Half a drachm of this was thoroughly triturated with two ounces of the sugar of milk. The patients were directed to take a small pinch of it and to snuff it well up the nostril affected.

About the same time I tried dried poke root (*phyttorica decandria*) berries. They were finely pulverized and a drachm of this thoroughly triturated with an ounce of the sugar of milk. This was, as was the last, snuffed two or three times a day into the affected nostril.

As I had used a solution of borax, grs. x. to the ounce of water, in sore throat, this was tried in nasal cavities.



A drachm of golden seal (*hydrastis canadensis*) in four ounces of water, was tried in the nostrils. This was always heated slightly before being used.

In the spring of 1860 I employed a cold infusion of the green root of black cohosh (*macrotys racemosa*). This was directed to be used three times a day; the strength was such as would not cause too much uneasiness in the nostrils. At this time I employed cubeb berries in the same way.

Five grains of aloes in a teacupful of warm milk was the next remedy tried, but this was far too strong, and the solution was reduced to two grains. This was used on a patient that recommended it.

Sulphate of zinc grs. x in a teacupful of warm milk seemed to have a very beneficial effect. Of course the milk soon curdled, but it was used nevertheless.

I think that it was about this time that I employed the albuminous portion of an egg, in about a teacupful of warmed water. This did not irritate in the least, but this property did not satisfy either me or my patient. I used it on not more than two or three patients, but did not think much of its curative effects.

In the spring of 1861 I employed a weak solution of chloride of zinc, for a very offensive case. My impression is that it did not benefit the patient in the least.

In nearly all of these patients I advised the use of the fumes of muriate of ammonia, made by heating this material over an alcohol lamp or other light.

In the fall of 1861 I was a private student of the late Professor Saml. D. Gross, of Philadelphia. From him I received private instruction on the diseases of the nose, and through his influence I was enabled to examine a large number of cases of nasal catarrh in the Blockley Hospital. I employed Krammer's bivalve ear speculum to extend the nasal passages. Afterwards I had a nasal speculum made, very much resembling the Krammer instrument, it has wider blades.



I will now transcribe the notes I made while taking this private course from Dr. Gross. I wish to call the reader's attention to them. It will be seen that what he taught me *is still practiced in the East, and is still recommended in every work that has been published in America or Europe*, with the exceptions of my own—the first edition of this work—but not one word of credit is given to Dr. Gross.

I will place my notes taken in Dr. Gross's office—in quotations. The largest part of these notes is a transcription from one of his case books, word for word:

"Ulceration is molecular death. All scabby noses are affected more or less with ulceration. This condition of the nose is chiefly of a strumous and syphilitic nature. They are very common, and are rebellious in character; the discharges are nearly always fetid. This disease is a source of great annoyance, both to the patient and the physician. The seat of the disease is originally in the mucous membrane; it afterward gradually extends deep, until, in many cases, it involves all the component structures, cartilage and bone as well as fibrous tissue.

"The disease generally commences high up in the nose, beyond the reach of the eye of the observer, but not unfrequently its first effects are displayed upon the inferior turbinated bone, or the nasal septum. In the strumous variety one side alone may suffer, whereas in the syphilitic, nearly always, both are implicated. Both forms are often met with early in life, and hence it is by no means always easy to distinguish them from each other.

"The most important diagnostic characters are, that in syphilitic ulceration there is, ordinarily, greater derangement of the general health, more extensive involvement of structure and more abundant discharge than in the strumous variety. Useful information may also commonly be derived from the history of the case and the temperament of the patient, though the latter is frequently



of negative value, as syphilis and scrofula may be both present.

"The discharge is generally of a thin, sanious nature, irritating and very profuse, requiring the frequent use of the handkerchief, rendering the poor sufferer disagreeable both to himself and those around him. The intensity of the fetor of the discharge is noted; for this reason it is termed *ozæna*.

"Nausea and frequently vomiting accompanies the disease. This is caused by the offensive secretions descending into the fauces and stomach.

"In the aggravated forms of the disease large quantities of inspissated mucus form in the nasal cavities; they are thick, brownish incrustations, and are blown off every fourth, fifth or sixth day. In some instance portions of cartilage and bone often die and slough away.

"The destruction by ulceration is more frequently seen in syphilitic cases than those of a strumous habit. These ravages often extend to the bones of the nose and palate, and occasionally even to those of the face, producing irremediable deformity.

"Treatment. This must be regulated by the nature of the exciting cause. Therefore this should be determined as soon as possible. A foreign body, retained secretions, or a disorder of the general health may be the exciting cause. Such cases are managed on general principles; they require no specific remedies. But it is otherwise when the disease is dependent upon a tainted state of the system. Then a long course of treatment, involving the exercise of much patience on the part of the sufferer, and great skill on the part of the physician, is usually necessary. Where the strumous character of the malady is well settled, the different preparations, iodine, barium and cod-liver oil are brought into requisition. If, on the contrary there is reason to believe that the disease has been induced by syphilis, mercury and iodide of potassium should be employed to an extent commensurate with the exigencies of each particular case.



"The morbid action may become so high that leeches and active purgation, with full doses of opium may be required. In the majority of cases, a tonic, and not a depletory course, are necessary, as is evident from the anæmia, and the emaciated condition of the sufferer.

"Local applications to allay fetor, and assist in establishing healthy action in the affected parts, various lotions are employed. The best are solutions of chlorinated soda, permanganate of potassa, chloride of zinc, nitric acid, nitrate of silver and sulphate of copper. These solutions, properly tempered are thrown twice a day into the nostril with a large syringe, the head being held forward over a basin, and thorough contact of the liquid with the inflamed surface being effected at each operation. *The rule is not to permit the injection, in any case, to smart beyond a minute, and as one article becomes inert to substitute another.*

(Note.—I am sure that the idea of substitution, mentioned above, is an old one, as my first preceptor, who was then an old man, said that he got this idea from his preceptor in the year 1805 or thereabout.)

"The yellow and black washes, which are useful in certain forms of syphilitic ulcers in other parts of the body, are objectionable in this, on account of their liability to descend into the stomach, and thus lead to pyalism.

"Dr. Gross' favorite nose wash, which he has employed for many years and with signal benefit. It may be applied in both varieties of disease. It consists of a solution of sulphate of copper and tannin, in the proportion of one-fourth of a grain of the former, and three grains of the latter to the ounce of water. Where there is much fetor a small quantity of chlorinated soda made be advantageously added to the other ingredients.

"A rapid cure in old, obstinate cases may sometimes be effected by washing out the nostril freely twice a day with a solution of chloride of zinc, in the proportion of



about one drachm to five or six ounces of water.

"When the diseased spot is seated in the anterior and inferior part of the nose, the nitrate of silver and sulphate of copper may be applied in substance, or the sore may be touched very lightly with the dilute acid nitrate of mercury.

"The milder unguents, as the citrine and calamine, may prove serviceable by softening the scabs and promoting healthy granulation.

"Leeching will be serviceable when there is swelling, with pain or tenderness in the nose."

Professor Gross was one of the physicians who advised me to continue my investigations of rhinal disease, and for this reason gave me unusual privileges in his private office, and afforded me uncommon opportunities in the Blockley Hospital. These advantages would have been followed up during the summer of 1862, had not an urgent call been made for physicians to attend the army hospitals, which now began to be filled with the wounded from the battle fields.

In December, 1862, I was stationed at the U. S. General Hospital at Jefferson Barracks, Mo., where I soon had a large number of patients. I followed the course of treatment recommended by Dr. Gross, until toward the end of 1863. From this time until October, 1865, I tried every plan of treatment that my judgment approved, but with partial success. While at this hospital I treated nearly one hundred patients, but could have treated fully three times that number, if I had been successful in the cure of the first cases. It was while I was at this hospital that I demonstrated the utter uselessness of the Thudichum-Weber nasal douche, mentioned in topic 563.

Discovering the fallacy of Dr. Thudichum's plausible and positive assertions, was the greatest disappointment I had experienced since 1855. When he said, without reserve or qualification, that this method *would cure nasal catarrh*, I, in common with almost every physician



in this part of the country, put implicit confidence in what he wrote. It should be known that it was our custom, and it is still the custom to some extent, to take for granted, that what every *London doctor* writes for the *London Lancet*, is true. Dr. Thudichum's *Lancet* articles raised my expectations to the highest pitch. After reading them I promised my patients—for the hundredth time—that now I can cure nasal catarrh. To be disappointed was grievous, but to be deceived by an article from so high an authority as a London physician in the *London Lancet*, exasperated me beyond what a mere disappointment would do.

While at the Jefferson Barracks hospital, after washing out the nasal passages with warm salt water, ℥j. ad Oj. I applied powders made of the suntrate of bismuth, cinchona, charcoal, starch quinine, chlorate of potassium, ipecacuanha relievence, iodide of potassium, quinine, camphor, each was thoroughly triturated with sugar, and sometimes with sugar of milk. I used the vapor from various of the essential oils; as cubebs, cedar, turpentine, origanum, tar, hemlock, cinnamon, peppermint, spearmint, with and without iodine, and with and without chloroform or ether. I smeared the inside of the nasal passages with sheep's tallow, made thin by chloroform or ether, and also used beef tallow, lard, coon grease, opossum fat, bear fat, and fresh, unsalted butter in the same manner.



## CHAPTER VI.

### THE MANNER OF TREATING THROATS IN GREAT BRITAIN AND EUROPE.

During my stay in London in July and August, 1881, I visited the principal hospitals for diseases of the Throat and Ears. At the one on Golden Square, known as Mackenzie's Hospital, I saw their method of treatment. The operator wore his reflector on his head held by a India rubber band. The light was taken from gas and concentrated by a lens to the head mirror. The patient was directed to come in by the janitor. He took a chair. The operator sat directly in front of the patient, and in his endeavors to get as near as possible, he placed the patient's knees between his knees, and came as near straddling him as he could, without getting on him. The patient was asked the question:

"Do you feel better to-day?"

I noticed that all of the questions were so worded that the answer was given him in the question, and those who had been going there quite a length of time, observing the effect of an unfavorable reply, invariably gave a favorable answer; but followed it up by a qualifying answer afterward, so that it could be noticed that they had not improved as much as the first answer implied.

The patient was directed to open his mouth and protrude the tongue. This was grasped by the operator's hand, he using a small towel to cover his fingers. The pharyngeal reflector was warmed over the gas light that was used for illumination, until the vapor on the reflector had disappeared, it was then passed into the patient's mouth while he was directed to say "ah." The first operator that I saw, was a young man who was, usually, very skillful in getting the reflection of the larynx. An older operator, one who, I was told, had been on the staff for ten or twelve years, scarcely succeeded in getting the reflection of even the upper border of the epiglottis, as he usually pressed the pharyngeal mirror against the soft palate, and



caused the patient to gag; but still he insisted on the patient making the sound that raises the epiglottis and uncovers the vocal cord. Thus they would endeavor to do while continuing to gag, and frequently they would actually vomit.

The examinations took but a small fraction of a minute. The patients were almost always informed that they were improving.

A brush on a curved handle about eight inches long, was dipped into a solution of nitrate of silver (strength unknown to me) and while the patient merely opened his mouth, his tongue, of course, pressing against the soft palate, the brush, not guided by the pharyngeal reflector, was pushed between the soft palate and the tongue, down toward the larynx. It is needless to say, that if the application was intended for the larynx, it never entered it, as any effort to thrust a probang or brush far enough down to reach the larynx, will be prevented by the base of the tongue and the epiglottis, which will force the instrument into the cesophagus; in the same manner that certain of the New York physicians said that Dr. Horace Green did when he attempted to probang the larynx; but Green always exposed the epiglottis, and thus saw that his instrument entered the larynx behind the epiglottis.

Some of the patients complained of uneasy sensations behind the soft palate. In such cases, the younger of the operators would, after passing the brush down and toward the larynx, turn it up so as to get it behind the soft palate; sometimes he succeeded in getting it high enough for the velum to hide the brush, but never high enough to reach the whole of the pharyngo nasal cavity.

While this brushing operation was going on, the patient was continually gagging, one spasm of the throat following another, until the brush was withdrawn. Of the two operators the younger was by far the better, as he nearly always used the pharyngeal reflector in passing his brush towards the larynx. Whether or not he entered the larynx, I could not say, although I took special pains to see if he succeeded, but I am positive the instrument was never made to enter the larynx during the older operator's applications on some twenty or more patients.

In the treatment of the diseases of the ear, the patient was frequently advised to use Thudichum's nasal douche. The application that was most frequently applied was the tincture of iodine to the fauces. Sometimes they would excise the tonsils if they were much enlarged.

While inflating the middle ear by the air bulb, the operator always compressed the bulb with his whole force. This, of course, made it very disagreeable for children and it seemed to me quite dangerous for a thin drum membrane. It was almost impossible for him



to induce the little sufferers to swallow the water, after it was very reluctantly placed in the mouth.

The phonation of the word "hick" after Gruber, or the use of any other word was not employed.

No effort was made to examine the nasal passages, although over half of the patients frequently snuffed nasal secretion while in the waiting room, and as some of them gagged, a large quantity of mucopurulent secretion could be seen as the retching collected it in the middle of the fauces.

The principal object of my European tour, made in the summer of 1884, was to make personal observations on the methods of examination and treatment of the disease of the nose, throat and ears. I will give my observations made in the cities as I visited them *seriatim*.

In Cork, Dublin and Belfast they use both the spectacle frame and the rubber band for holding the head reflector on the head. Most of them used an argand gas burner without a condenser. In these cities, either tincture of iodine, nitrate of silver and the tannates were applied by a brush and syringe to the fauces and larynx and preparations of bismuth and borax were insufflated into the throat. The steam spray producer, throwing the iodine and the tannates were frequently employed. In this country, the medical profession does not have a written code, but they will not allow a man to take any one branch of medicine and make a specialty of it. In fact, the unwritten British code is far more tyrannical and intolerant of specialists than the American code.

The amount of work done on the throat by the physician is comparatively small. The ears were always treated by those who treat the eye. As to treating the nose, three physicians of tolerably large practice said that there were "almost no nose trouble in our land." I added mentally "as far as you see;" for the cases were there in the hospital, not only ready for treatment but presenting the very symptoms that indicate nasal disease. There was one case, that of a young man having pain in the throat and soft palate, as well as pain in the left arm extending to the little finger. He had also an old otorrhoea, and a strabismus of the left eye. All these symptoms were greatly aggravated by colds in the head, as he said on my questioning him.

The description of the methods employed in Berlin will serve for that of Hamburg, Dresden and other large cities in Prussia.

In Berlin I saw seven different clinics. In one place only was there any attention paid to the diseases of the nasal passages. Here the insufflation of powder was employed. The powder was thrown up each nostril, after a brush containing tr. iodine had been passed



up each nostril. The brush was passed so as to touch the superior, middle and inferior turbinated processes.

The methods seen in Berlin, Vienna, Paris and London, represents every variety in Europe. One would expect to get a pretty good idea by attending an International Medical Congress where many of the most prominent men of the world give expression to their views; but such is not the case.

In Vienna, the clinics are held either in the hospital or near it. Here they used the rubber band for holding the reflector on the head. The brush probang was employed in the throat. The patient's statements concerning their symptoms in the throat were used to indicate the location of the disease; in fact, this is universally the case the world over. In one clinic the cotton probang was pushed up behind the velum palati and moved from side to side as much as possible. This was done while the patient was continually gagging. A brush dipped in tr. iodine was sometimes pushed up each nostril, so as to pass into each nasal meatus; then a brass tube bent at an angle of  $45^{\circ}$  was filled with a white powder, sometimes a preparation of bismuth, sometimes of boric acid. The strength of the solution thrust into the throat could not have been very strong, or it must have been passed into the œsophagus, as the patient seldom gasped for breath, an evidence that the probang had entered the larynx. The pharyngeal mirror was always employed to guide the instrument. While I frequently made attempts to see whether or not the brush entered the larynx, yet I always failed to see it passed. Of course, I do not say that it did not enter the larynx; but I had no evidence of it. That it did not enter the larynx, was I think, a fortunate thing for the patient.

One thing that strikes the stranger on entering the various clinics in Germany, is the complete submissiveness of the patients. In many instances not a motion of the face would indicate the least inconvenience, even if the face were made red by the efforts to control it. The Austrians excelled all nations in submission and control.

In Paris, the only change was the use of the lime light for illumination. The oxygen was made from pot. chlorate and the common street gas taken for the Hydrogen; the light came through quite a long tube and was thrown into the throat without reflection.

All countries use the steam spray producer, throwing alum, potassium chlorate, tr. iodine and iodide of potassium, etc.

In London nothing new was seen. The same methods that I saw in 1881, were employed in 1884.



## CHAPTER VII.

### THE CURABILITY OF CHRONIC NASAL CATARRH.\*

Can Chronic Nasal Catarrh be cured? Yes, almost every uncomplicated case, under thirty-five or forty years of age, will ultimately recover if the patient and the physician will do their duty. This question is often asked by patients. The reason for the doubt of its curability, is that many of them have tried various patent "sure cures," advertised in the *religious* as well as the secular newspapers, and have taken numerous prescriptions from advertising physicians and are still uncured. As might be expected, positive injury is the result of this course to the majority, while a few of the more fortunate ones experienced relief for a short time only. Besides these discouraging results, they had heard of others who have had the same experience, all of which drives them to the supposition that the disease is well-nigh incurable.

There is another and a very large class of patients who have received proper treatment, and who commenced but do not continue to take proper care to avoid renewing the originating cause of the dis-

**THEM.**

If asked by their friends concerning their catarrhal complaint, they reply that they were conscious of marked improvement at the early part of the treatment, but after a few weeks, while not as ill as at the commencement of the treatment, the improvement did not continue, and for this reason they discontinued treatment. Such patients after a few months, will relapse to their former state of ill-health.

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\* I know that I will repeat much that has already been given, yet I will treat the subject as thoroughly as though I had not said anything in reference to it.



They either purposely or unconsciously conceal the truth to avoid a merited censure of their conduct, and make it appear that it was the physician's fault alone, that improvement did not continue to complete recovery. The relapse to their former state of ill health is but a consequence of the relapse to their former mode of life.

It is evident that if a case of this kind had not continued to contract the disease, and the physician had continued to give appropriate treatment, the patient would have continued to improve until complete recovery had taken place; for if he improved when his health was seriously impaired by the disease, it seems natural to suppose that after his system had markedly recovered from the debilitating influence of the catarrh, he would have continued to improve if the same hygienic and therapeutic measures had been continued.

But these patients fail to fully appreciate the importance of hygienic measures, and only observe them while under the debilitating influence of the catarrhal disease.

It is seen that patients, like a great many physicians, expect that this disease is to be cured by medicines, alone, the sufferers' custom, habits and dress are not required into; local symptoms alone absorb the attention.

There are three very good reasons why very many patients are not cured. In the *first* place, they are unconscious of living in constant violation of the laws of health. *Second*, they do not have the least conception that their disease is solely the results of these violations. *Third*, they do not know that they are so seriously or rather so permanently affected; consequently they expect to be cured quickly, and not being cured quickly engenders a fear that they will not be cured at all. Not only will they be dissatisfied if they are not completely cured at the farthest in a few weeks or, may be, months, but this result must be effected without any trouble on their part, as well as without interfering in the least with their usual course of life, especially if this course of life has been for years in gross violation of the laws of health.

Whenever a patient asks questions concerning the curability of this disease, the answer must be varied according to his age and temperament; but as a general rule, if a patient, under thirty five or forty years of age will take proper care of himself, and receive a perfectly non-irritating local treatment, and suitable constitutional treatment, **HE WILL RECOVER FROM EVERY ONE OF HIS VIOLENT SYMPTOMS.** He notices a cessation of these symptoms immediately after he commences treatment; a great majority notice it on the **FIRST DAY.** All of these violent symptoms should disappear in a few weeks or months at the most, but he must not think that he is so completely cured, that he can again commence a vigorous assault on the laws of health.



If he continues to observe the laws of health and receive a few local treatments fall and spring—if he notices even a slight return of his old symptoms—he will in a few years lose all tendency to a recurrence of his disease. He may, once in a while, take a little cold in the head, but his liability to take these colds will be very greatly reduced, nor will they be nearly so severe or last so long as formerly; and should he receive one or, at most, three local treatments, every vestige will quickly disappear, not to return unless he is unduly exposed.

During this time and after this time, his life will not be disturbed with any of his former painful symptoms; in other words he will be in a healthy condition—A GRAND RESULT INDEED.

Being in health, if he lives in obedience to the laws of hygiene, of which he should not be ignorant, he will remain healthy. His health will be the great reward of his small service to the goddess **HYGIEA**; a goddess who never allows her devotees to go unrewarded.

Those who are older, will also be relieved of their prominent symptoms, as stated elsewhere, but will require more frequent fall and spring treatments.

**No Disease more Amenable to Hygienic and Therapeutic Management.** I know of no disease that so quickly yields to proper treatment as chronic catarrhal inflammation of the nasal cavities. It is really remarkable how quickly the healing powers of nature commence to restore the diseased parts to their healthy condition when it has an opportunity. If the right kind of local applications are made, the right kind of internal remedies are given, and the patient takes the proper care of himself, reparation commences at once.

Some physicians practice as though they thought that the medicine alone was able to cure a case; consequently pay no attention to hygiene. In this they resemble the "sure-cure" men; both recommend their medicines as curing, neither give the least thought to the care the patient should take of himself. Medicine no doubt, performs a very important rôle in the matter of curing, one that cannot be taken by anything else, and, in my judgment, it might be said to do about ONE FOURTH of the work. It is difficult to make an estimate of the proportionate value of the various means that take part in the recovery of a case, but the credit I have given to medicine is all that is due to it. It follows that the physician who pretends to cure this disease without depending upon the successful attention to the laws of hygiene, will be as unsuccessful as the patent "sure cure" man. In fact, the patent "sure cure" man has filched the formulas of his compounds from just such medical men as I am now alluding to, and these patent



compounds are no more nor any less efficacious than many of the medicines employed by physicians of high standing.\*

It will be well to give the proportionate value of the other means that take part in the improvement and cure of a case. I think the CARE taken by the patient; that is, such care as will be successful in preventing the recurrence of the causes of the disease, namely warding off colds, abstaining from the use of tobacco and stimulants, etc., should receive NEARLY ONE-HALF the credit of the cure.

These two potencies, medicine and hygiene, would be unsuccessful without the assistance of another, namely, the healing tendency of nature. Suppose the medicines were given and applied to a dead body, and all the cure bestowed upon it that should be bestowed upon a living one, would it not amount to a farce?

It is seen that there are three conditions essential to a cure of this disease, viz :

- (a) The patient's successful efforts in preventing the recurrence of the causes of the disease.
- (b) Perfectly non-irritating methods of applying perfectly non-irritating remedies, and the use of appropriate internal medicines, and,
- (c) The healing tendency of nature.

The more vigorous the tendency of nature, the less seriously will the patient be affected by colds, and the more quickly will a cure be performed. This healing force or potency is found to be strongest in the infant and gradually to decrease as advanced age is reached. It is stronger in those who have dark hair and weaker in those who have light hair. Persons who have dark hair have relatively a stronger skin and mucous membrane, and those who have light hair, a weaker skin and mucous membrane.

The secret of the cure of chronic nasal catarrh is this: the patient and the physician has only to prevent the operation of harmful processes that are causing and maintaining the disease, and at once the healing operations of nature commence the process of repair. In the young, the amount of impairment of the mucous membrane is so small and the healing tendency so great, that a cure is quickly and easily effected, while with those who have arrived at more mature years, the injury done to the mucous membrane by diseased action is greater, and the healing tendency of nature relatively weaker; therefore more time for repair and more work by the physician is required before the process of repair is completed.

It is seen, that the patient has the most to do, and the physician the least to do, while a cure is being effected.

\* It is a notorious fact that many physicians are now using some of the most popular "sure-cures."



**Will the Catarrh Return?** This question is a very proper one, and is nearly always asked by my patients. A fretful doctor might answer it by asking the following questions: "If you get cured of a burn, can you not burn yourself again? If you get cured of a cold, can you not again expose yourself and take another cold?"

While these answers are in every respect an answer to the question asked by the patient, yet they might deter him from asking other questions, the answers of which would teach him how to prevent the return of the catarrh, a matter of very great importance to him.

Here are my answers: 1st. Yes, the catarrh will return again if he does not use every precaution to prevent taking cold; in other words, if he does not discontinue the habits that contracted the disease. Not only is it altogether likely that, if he has had only a few weeks treatment, he will take cold at the next change of the season, as his mucous membrane has not had time to recover its normal resisting power; consequently he will require a few treatments—about 10 per cent. of his first long course—to again relieve him of the new inflammatory process that has just began. If these treatments are not given, the disease will again commence to increase in severity, and will, in a few years, assume as grave a phase as at the commencement of the first treatments.

2nd. answer: No, the catarrh will not return, if he lives consistently with the laws of hygiene. No person after once undergoing a treatment for chronic catarrhal inflammation of the nasal passages, should ever have symptoms as severe as he had previous to being treated. If he does, it is his own fault, and he knows it, and does not care to change his course of life to prevent it.

It is certainly a very proper, as well as a very reasonable request to ask of patients that they will as strictly observe the necessary conditions of health, as they would if suffering from any other disease; namely that they use their utmost endeavors to prevent the renewal of the causes of the disease.

Is this possible? Yes always possible.

It is not because of inability of patients to conform to conditions that will assist in bringing about a recovery, but to their complete ignorance of the fact that by their own acts, they have brought on, and are maintaining this disease. This accounts for patients making no effort to prevent the renewal of the causes of the complaint, that is the effects of colds, tobacco and stimulants.

Let us commence with the youngest sufferer. Is the nurse unable to prevent the new-born infant from being washed in water, which is sure of giving its first cold? No! Is she unable to wash its body with an oil that will cleanse it more perfectly and at the same time prevent it from taking cold? No! Is a mother unable to properly



protect her babe when she takes it for a healthful out door walk? No! Is she unable to make a cap to protect its tender, hairless head from being injured by even an in-door temperature that is twenty to thirty degrees colder than its blood? No! Then why does she not prevent it from becoming afflicted with snuffles—another name for a very profuse acute catarrh—a symptom that is positive proof that it is suffering severely from an attack of cold in its nasal passages, the result of insufficient protection of its head.

The only answer that can be given to these questions, is that she is unconscious of any omission in the care of her child, and has not the least conception that the slightest harm will result from the frequent washings in water and because its head is uncovered. She does not know that the snuffles—to her a very trifling matter (?) because it is so exceedingly common—is the result of a cold. She has not been informed that a cold thus taken, prepares her child's mucous membrane to take another cold more easily on the next exposure, and that repetition of exposure, and consequent cold are positively certain to end in serious disease of the nasal passages, throat, ears or lungs, or several of these organs at the same time.

If a child thus exposed, survives and attains the age of ten years (it has only one chance in three of doing so, because of the effect of colds) its nasal passages, Eustachian tubes, throat and, may be, its lungs will be so weakened by catarrhal inflammation, that it will be liable to suffer attacks of headache, or be affected with enlarged tonsils, deafness, weak eyes, asthma, pruritic catarrh (hay-fever), etc. and the disease may be so severe as to interfere with its growth, if it does not cause it to fill an untimely grave.

Who would say that such a child would have taken a cold if its head had been properly protected? Who would say that its cold would not at once disappear, if its mother would take as much care to protect its head as she does the rest of its body?

Every child that is ten years old, and is in the "habit" of taking cold, has had the mucous membrane of the nasal passages inflamed when an infant, the result of undue exposure and is still suffering from insufficient protection of a part or the whole of its body.

Few persons of observation, will say that these colds could not be very materially lessened by a proper attention to clothing alone. If there are some who do not agree to this, will they deny that removal of clothing from a catarrhal child would not at once aggravate all its catarrhal troubles?

I have yet to see intelligent parents, especially those who have raised large families, that did not agree with me in this regard, as soon as the subject was shown in all its bearings.

What can be said of a mother's judgment, and her knowledge of



the laws of health, when she dresses her seventeen year old daughter—an age when she is very liable to functional interruptions of a very serious nature—in garments that weigh but a little over half of what her fifteen year old son's clothes weigh. In common matters of every day life, there is no greater demonstration of woeful ignorance—almost criminal—than is here displayed. The son, although not so mature, demands almost twice the weight of clothing; he is stronger than she is, and can resist the effect of an inclement temperature much better than she can, but he would be sick and in bed in two weeks were he compelled to wear her scanty, unprotecting garments.

I believe the reason that he is stronger than she is, is because he is dressed so warmly that his system is not debilitated in resisting the effect of colds. Who would say that conformity of the laws of health in regard to clothing, would not be as beneficial to this young woman's strength of body, as it is to her brother's?

The method of clothing adopted by almost every woman up to the age of 25 or 30 years—the commencement of woman's age of reason—maintains their nasal catarrhal inflammation. Every thinly clad female that has shivers coursing up and down her back, is, without exception a victim of nasal catarrh.

I know in saying this, I leave a very small number who have healthy respiratory organs.

To conclude; the healing tendency of nature is so strong in sufferers under five years of age, that they will recover upon the observance of the laws of health alone, while with those who are older, but still "able to be about" and to attend to ordinary business, hygienic measures, combined with local and constitutional treatment, will result in recovery.

In the case of every sufferer in whom the observance of the laws of health has the effect of producing even a slight improvement, the additional aid from a physician will result in his betterment, if not final recovery.

Those who have been so far brought under the influence of the disease, that a discontinuance of the originating causes do not bring any improvement, local applications of the right kind, *will always give relief*, but whether it will lead to ultimate recovery can be found by trial alone. As a general thing, the sufferings of such cases are relieved only; medicine in any form, will not arrest their downward course to the grave.







## **ANATOMICAL SECTIONS.**

**Taken from Dr. E. Zuckerkandl's Anatomy of the Nasal  
Passages.  
With slight Modifications.**

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## **ANATOMICAL SECTIONS.**

**One and Two.**



SECTION I. Antero-posterior vertical section of the left nasal passage. *a*, lachrymal canal, a probe is seen projecting downward under the inferior turbinated process, a large portion of which has been cut away, to expose the tear passage; *b*, opening under the middle turbinated process into the left antrum of Highmore, anterior ethmoidal cells and the frontal sinuses; *c*, opening under the superior turbinated process, into the posterior ethmoidal cells and the sphenoidal cavities; *d*, projecting cartilage of the mouth of the Eustachian tube or ear-air-canal; *e*, mouth of the ear-air-canal; *f*, undivided uvula; the uvula partially covers the left tonsil; *g*, elevated portion of the floor of the nasal passage.

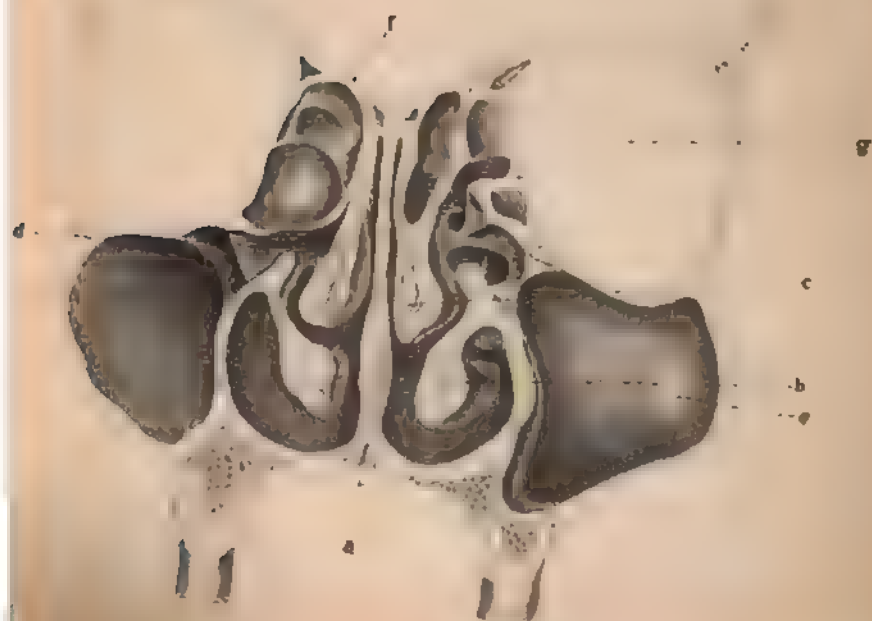
SECTION II. Lateral vertical section through the nasal passages anterior to the superior turbinated processes and through the opening into the antrum of Highmore exposing these cavities and the anterior ethmoidal cells, looking from behind forward. *a*, septum nasi, slightly enlarged; *b*, inferior turbinated process; *c*, middle turbinated process; *d*, opening into the left antrum of Highmore; *e*, right antrum of Highmore; *f*, left anterior ethmoidal cells; *g*, orbit of the right eye.



SECTION I.



SECTION II.









**ANATOMICAL SECTIONS.**

**Three and Four.**

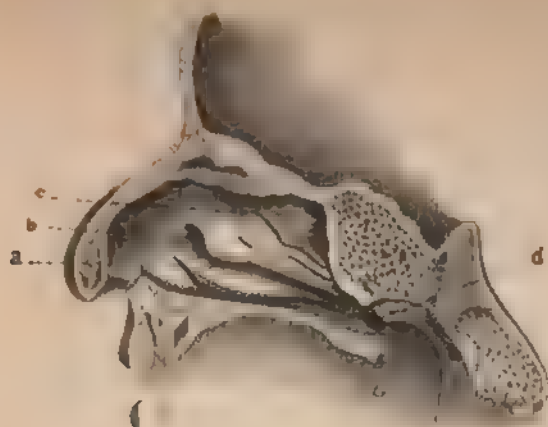


SECTION III. Antero-posterior vertical section through the right nasal passage of an infant. *a*, inferior turbinated process; *b*, middle turbinated process; *c*, superior turbinated process; *d*, mouth of the Eustachian tube. This illustration represents the natural size of the nasal passage. It is seen that the mouth of the Eustachian tube (*d*) is in a passage less than a quarter of an inch in its vertical diameter. Should the infant be exposed to a slight draft of air, sufficient to cause even a small increase in the flow of nasal mucus, this must flow upon the mouth of the ear-air-canal (*d*) and thus be drawn into the middle ear. If the quantity be not great no abnormal results will follow, but should the increase of mucus be continuous, middle ear trouble of a very grave character must ensue, as has been frequently emphasized in the text of this work.

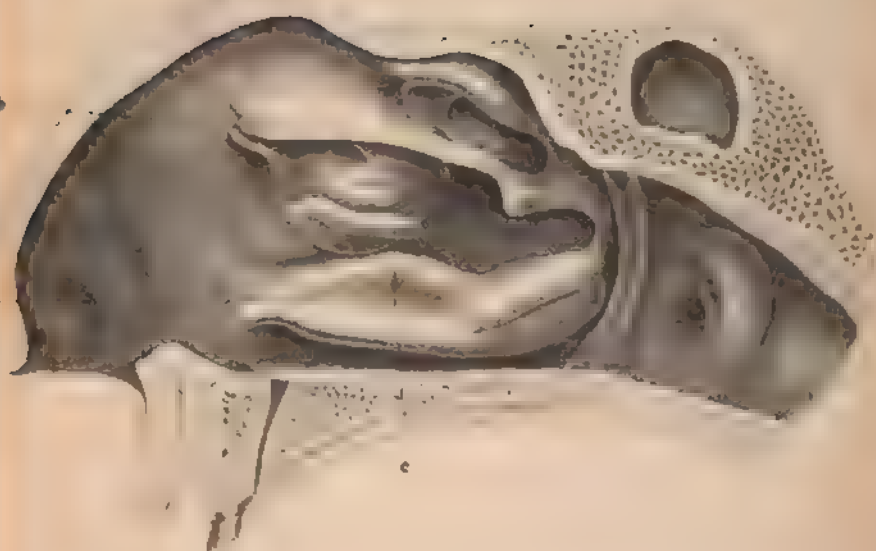
SECTION IV. Antero-posterior vertical section of the right nasal passage. Aged about 18 years. *a*, inferior turbinated process, the posterior portion of which has been in a hyperplastic condition but is now undergoing atrophy; *b*, middle turbinated process partially cut away to expose a polypus (*c*). The frontal sinuses are not yet formed, the sphenoidal sinuses are but partially formed.



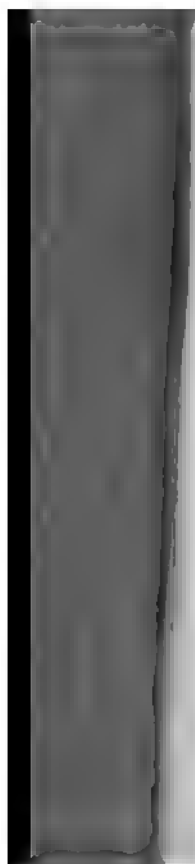
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SECTION IV.









**ANATOMICAL SECTIONS.**

**Five and Six.**



SECTION V. Lateral vertical section of the nasal passages dividing all of the turbinated processes, looking from before backward. *a*, inferior turbinated process; *b*, middle turbinated process; *c*, superior turbinated process.

SECTION VI. Lateral vertical section of the nasal passages.



## SECTION V



## SECTION VI









**ANATOMICAL SECTIONS.**

**Seven and Eight.**



SECTION VII. Antero-posterior section of the left nasal passage, aged about 30 years. *a*, inferior turbinated process, partially hyperplastic and partially atrophic; *b*, middle turbinated process with a polypus attached to its anterior portion and hyperplastic growth of its posterior portion; *c*, small polypus under the superior turbinated process.

SECTION VIII. Antero-posterior section of the right nasal passage. *a*, two large polypi attached to the middle and superior turbinated processes; *b*, attachment to the anterior nasal wall; *c*, a small secondary growth on the pedicle of the large polypus.



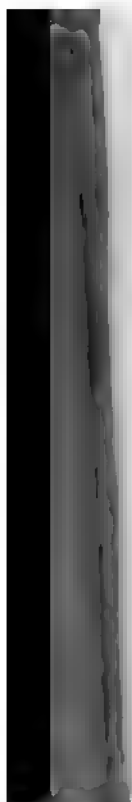
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SECTION VIII.









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**ANATOMICAL SECTIONS.**

**Nine and Ten**







**ANATOMICAL SECTIONS.**

**Nine and Ten.**

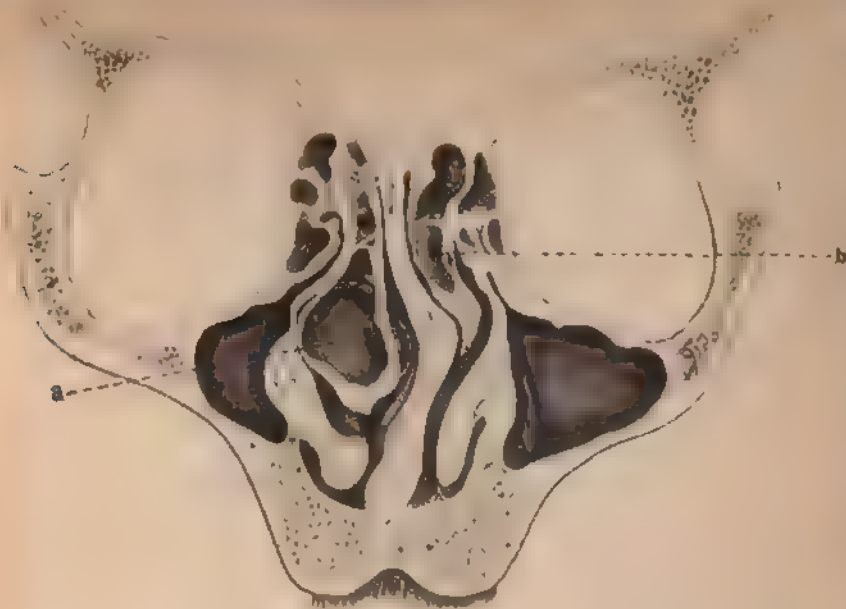


SECTION IX. Lateral vertical section of the nasal passages anterior to superior turbinated processes. The peculiarity of this section is a large cavity (*a*) in the left middle turbinated process and a small cavity (*b*) in the upper portion of the right middle turbinated process.

SECTION X. Lateral vertical section dividing the superior turbinated processes



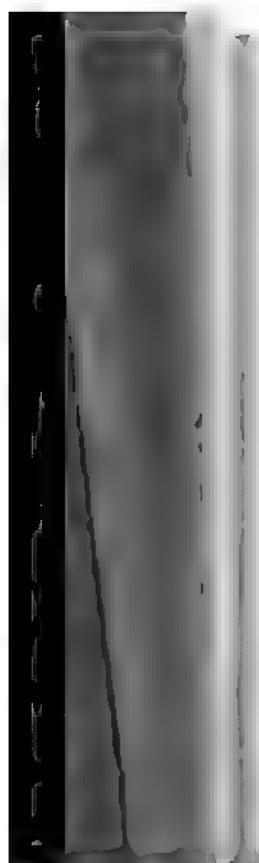
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## SECTION X.







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**ANATOMICAL SECTIONS.**

**Eleven and Twelve.**

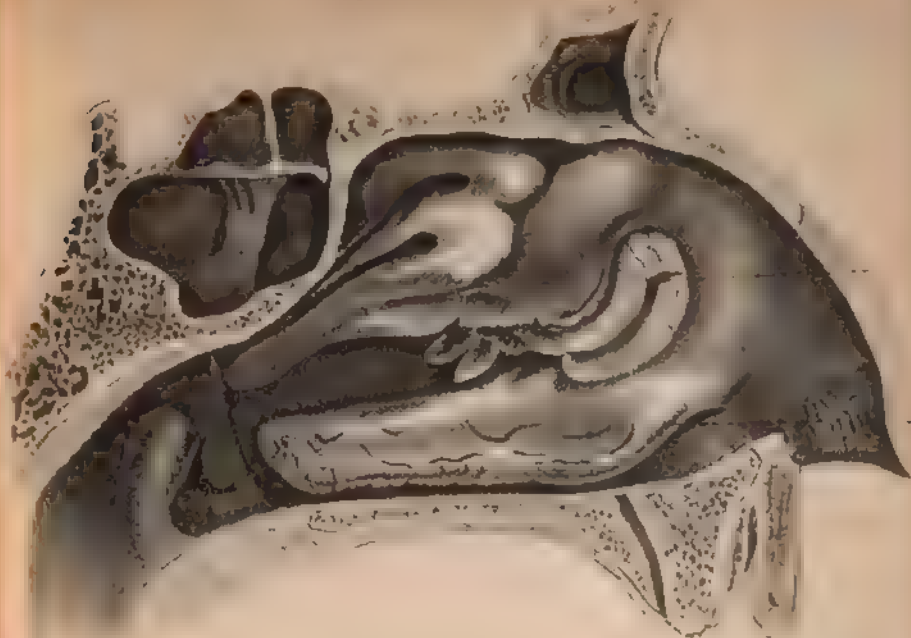


SECTION XI. *a*, inferior turbinated process partly hyperplastic and partly atrophic; *b*, gelatinous polypi under the middle turbinated process.

SECTION XII. Inferior turbinated process the posterior portion of which is tumified and granular. This is the kind of tissue that frequently completely fills the nasal passage on the recumbent position being assumed.



SECTION XI.



SECTION XII.









**ANATOMICAL SECTIONS.**

**Thirteen and Fourteen.**



SECTION XIII. Lateral vertical section looking from forward backward. This section is given to show the eminences on the floor in the antra of Highmore (*a*).

SECTION XIV. Antero-posterior vertical section through the right nasal passage exposing the septum nasi. *a*, a large opening through the septum occasioned by atrophy, not ulceration.



SECTION XIII.



SECTION XIV.





## SECTION XV.



## SECTION XVI.





SECTION XV. Showing (a) the inferior turbinated process in a atrophied condition. In this section is seen <sup>on</sup> four turbinated processes.

SECTION XVI. Antero-posterior vertical section showing the right nasal passage in which there are three polypi *a*, *b* and *c*. It is seen that the posterior portion of the middle turbinated process is in an atrophied condition.



SECTION XV.



SECTION XVI.









**ANATOMICAL SECTIONS.**

**Seventeen and Eighteen.**



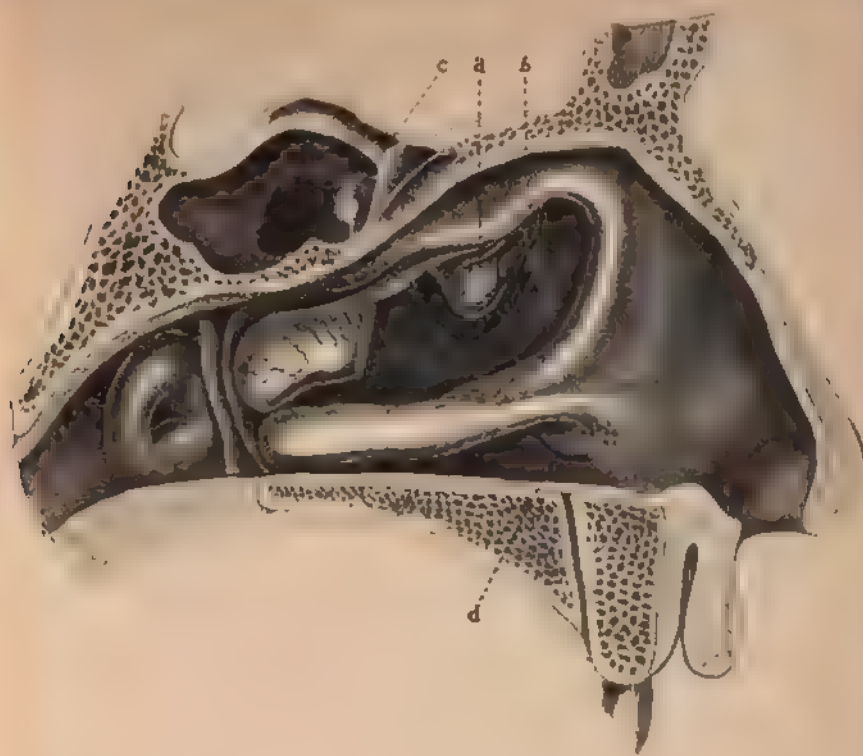
**SECTION XVII.** Antero-posterior section through the left nasal passage *a, b* and *c* illustrating the position of nasal tumors, the middle turbinated process has been partially removed.

**SECTION XVIII.** View of the posterior nares in which is seen erectile growths on the septum nasi (*a*).



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SECTION XVIII.





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**ANATOMICAL SECTIONS.**

**Nineteen and Twenty.**



SECTIONS XIX and XX are two sections from the same showing the effect of constitutional disease in deforming and many of the cavities.



SECTION XIX.

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SECTION XX.





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**ANATOMICAL SECTIONS.**

**Twenty-one and Twenty-two.**



SECTION XXI. Transverse vertical section through all of the turbinated processes, showing a very free communication between the nasal passage and the antra of Highmore at *a*.

SECTION XXII. Vertical transverse section of the nasal passages through the inferior and middle turbinated processes. *a*, hyperplasia of the septum nasi, also showing an over-growth of the cartilagenous portion; *b*, hyperplasia of the middle portion; *c*, hyperplasia of the middle turbinated process.



SECTION XXI.



SECTION XXII.





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**ANATOMICAL SECTIONS.**

**Twenty-three and Twenty-four.**



**SECTION XXIII.** Antero-posterior section exposing the left passage ; *a*, papilloma of the inferior turbinated process.

**SECTION XXIV.** Section exposing the right nasal passage, showing atrophy of the inferior and middle turbinated processes.



## SECTION XXIII.



## SECTION XXIV.





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**ANATOMICAL SECTIONS.**

**Twenty-five and Twenty-six.**



SECTION XXV. Antero-posterior section of the left nasal passage, showing excessive atrophy of the middle turbinated process and three tumors in the same neighborhood, both the inferior and superior turbinated processes are in a mixed condition having both hyperplasia and atrophy side by side.

SECTION XXVI. Lateral vertical section of the nasal passages showing great atrophy of the inferior and middle turbinated processes.



SECTION XXV.

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SECTION XXVI.





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**ANATOMICAL SECTIONS**

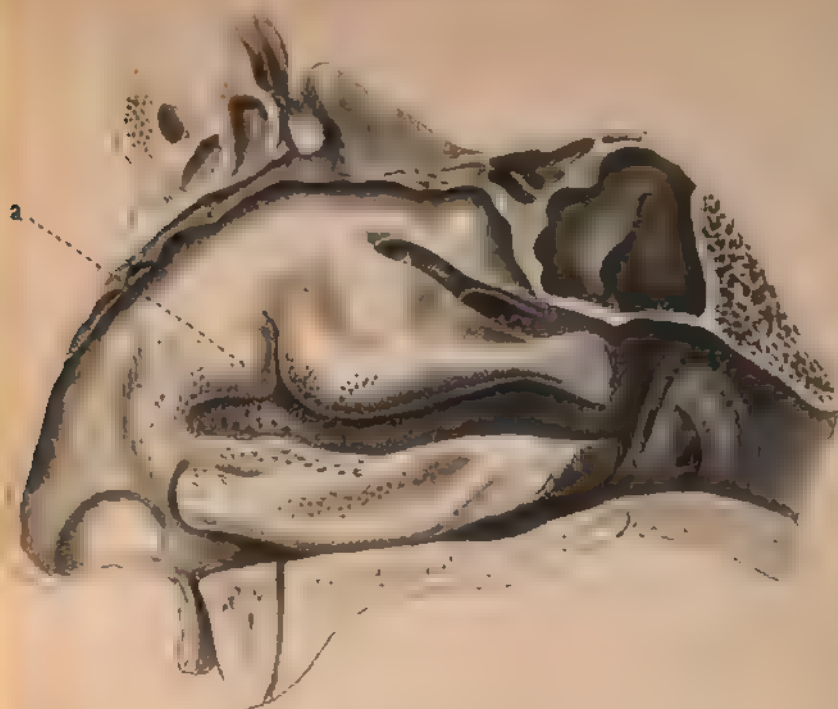
**Twenty-seven and Twenty-eight.**



SECTION XXVII. Antero-posterior section exposing right nasal passage. *a*, tumified condition of the mucous membrane anterior to the middle turbinated process.

SECTION XXVIII. Lateral vertical section of the nasal passages, showing excessive hyperplasia of the inferior and middle turbinated processes and a polypus (*a*) under the left middle turbinated process.





SECTION XXVIII





1. The first part of the document is a list of names and dates.



**ANATOMICAL SECTIONS**

**Twenty-nine and Thirty.**



SECTION XXIX. Lateral vertical section of the nasal p  
showing excessive enlargement of the antrum of Highmore (

SECTION XXX. Lateral vertical section showing e  
thickening of bone structure under the antrum of Highmore





SECTION XXX.









**ANATOMICAL SECTIONS**

**Thirty-one and Thirty-two.**



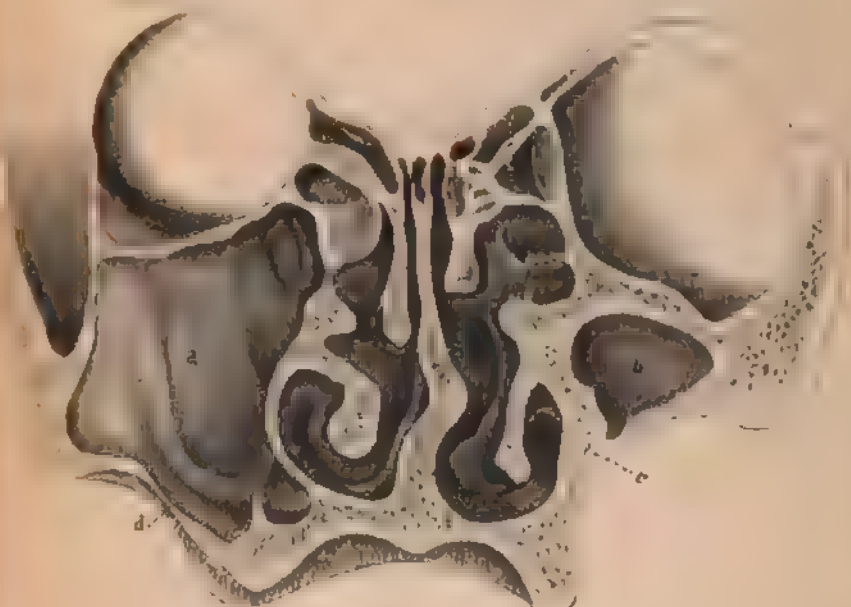
**SECTION XXXI.** Lateral vertical section, showing excessive enlargement of the nasal passages at *a* and *c*, and a proportionate diminution of the antrum of Highmore at *b*.

**SECTION XXXII.** Lateral vertical section showing excessive enlargement of the left antrum of Highmore (*a*) and diminution of the right at *b*; *c*, shows as great a contrast in thickening of the bone on the right side, while that of the left side at *d* is quite thin.





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